

OPERATION MANUAL

SY ANNAGINE

DYKSTRA 110'





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1 Introduction

This manual has been compiled to help the crew to operate the yacht with safety and pleasure. It contains details of the yacht; the equipment supplied or fitted, its systems and information on their operation. Please read it carefully, and familiarize yourself with the installation before using it.

This operation manual is not a detailed maintenance or trouble-shooting guide. In the case of difficulty, refer to the supplier or his representative. If a maintenance manual of an installed component is provided, use it for the yacht's maintenance.

Always use trained and competent people for maintenance, repairs or modifications. Modifications that may affect the safety characteristics of the yacht should be assessed, executed and documented by competent contractors.

The crew should be familiar with the use of all safety equipment and emergency manoeuvring (man overboard recovery, towing, etc.). Regularly organize drill sessions for the crew.

All persons should wear a suitable buoyancy aid (life jacket/personal floatation device) when on deck. Note that, in some countries, it is a legal requirement to wear a buoyancy aid that complies with their national regulations at all times.



Please keep this manual in a secure place, and hand it over to the new owner when you sell the yacht.



2 General information and craft data

2.1 General data

Type:	Dykstra 110' Classic Sloop
Name:	Annagine
Flag state:	Malta
Homeport:	Valletta
IMO Number:	1010234
MMSI:	248707000
Call sign:	9HB2038
Keel laying date:	May 2007
Class notation:	+100A1 SSC Yacht Mono G6 / MCA Short-range

2.2 Manufacturer and architect

Builder:	Jacht Ontwikkelings Maatschappij Holland BV Leidsegracht 13-15 1017 NA Amsterdam The Netherlands
Architect:	Gerard Dykstra & Partners Kruithuisstraat 21 1018 WJ Amsterdam The Netherlands

2.3 Main dimensions

Length over all (L_{OA}):	33.90 m	(including guard rails)
Length over deck (L_{DECK}):	33.25 m	
Waterline length (L_{WL}):	26.05 m	Design condition
Beam over all (B_{OA}):	7.10 m	
Beam moulded (B_H):	7.05 m	
Beam waterline (B_{WL}):	6.72 m	Design condition
Draft canoe body:	1.26 m	
Draft keel:	4.30 m	
Depth at midship:	2.75 m	

2.4 Class & Loadline dimensions

LR rule length (L_{RULES}):	25.85 m
Loadline length (L_{LL}):	29.42 m
Freeboard:	1.40 m

2.5 Masses

Displacement floatation FWL:	99.0 Tons
Displacement scantling WL (FWL +100):	114.0 Tons
Total ballast weight:	47.0 Tons

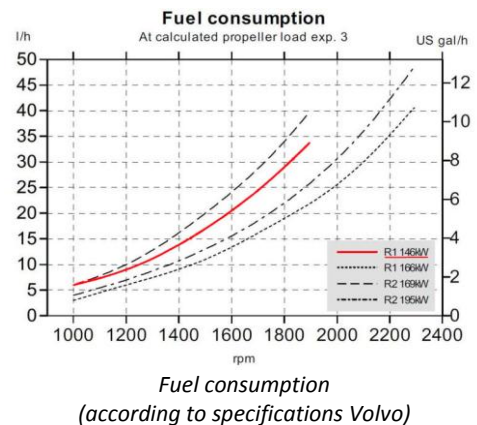


2.6 Tank capacities

Diesel tank – port side:	1700 ltr
Diesel tank – starboard:	1700 ltr
Diesel day tank – in engine room:	240 ltr
Water tank – port side:	1700 ltr
Water tank – starboard:	1700 ltr
Grey water tank – port side:	500 ltr
Black water tank – starboard:	500 ltr

2.7 Engine data

Engine type:	Volvo Penta
Model:	D7A-B TA
Maximum engine power:	148 kW [199 HP]
Rotations:	2300 rpm
Gearbox type:	Twin Disc
Model:	MG5050V
Ratio:	2.50:1
Propeller:	4 Blade Ø 750 mm
Shaft:	Steel Ø 60 mm



2.8 Electrical data

2.8.1 Direct current

Capacity engine	24V DC / 225 Ah
& generator Std battery bank:	
Capacity generator Pt battery bank:	24V DC / 225 Ah
Capacity service battery bank:	24V DC / 1650 Ah
Emergency battery:	24V DC / 200 Ah
Alternator start battery:	55 A (Standard alternator will probably be replaced by A alternator)

2.8.2 Alternating current

Voltage:	400 V
Frequency:	50 Hz
Phases:	Three
Isolation transformer:	Exendis MarPower PSC II / 25 kW 31 kVA / 170V-520V 40Hz-70Hz
Generator type:	2 x Northern Lights
Model:	M944W
Capacity:	26 kW; 400 VAC; 3 phase; 50 Hz
Amps:	3 x 40A
Rotations:	1500 min ⁻¹

2.9 Steering data

Type:	Edson Chain & Wire Rope
Reduction	3 ¼ turns of wheel from portside to starboard



2.10 Classification and statutory approvals

The yacht complies with construction and safety standards according to the Special Service Craft rules of Lloyd's Register and to the MCA Large Yacht code 2. This means that the yacht is registered as a Commercial Vessel.

Class notation: +100A1 SSC Yacht Mono G6 / MCA Short-range

Service group 6:

- *covers yachts having unrestricted service.*

MCA Short-range:

- *restricted to operating in forecast or actual wind of a maximum Beaufort Force 4, and*
- *within 120 nautical miles of a safehaven.*

The MCA Code covers all aspects of safety including construction, stability, installations and equipment, fire and lifesaving appliances, pollution prevention, survey and certification, and manning. In preparing this unique set of requirements, the MCA has still had to conform to IMO (International Maritime Organisation) rules and conventions such as , SOLAS, and MARPOL, where they may apply.

The International Load Line Convention sets standards of construction, strength and subdivision and the criteria for minimum stability and freeboard. The SY Annagine complies with the stability requirements and has undergone an "inclining experiment". Lloyds Register has issued a Load Line Certificate.

The Code of Practice details standards of machinery and equipment, electrical, steering and pumping installations. All these requirements come from a long experience in ship safety practice and analysis of past accidents, they are designed to save the lives of those on board and at least give them time to get off the vessel safely. The Code deals at length with coaming heights, hull and deck openings, fire insulation, escape routes, etc. furnishings, mattresses, curtains, carpets, etc. must be approved to be fire and toxic safe. Engine rooms and galleys must have good insulation and fire suppression systems.

The Code details fire protection, and fire fighting and lifesaving appliance standards. The radio requirements follow GMDSS regulations. The yacht will have to increase their safety equipment to include at least a second fire and bilge pump outside the engine room, life rafts, fire detection, and a SART.





3 Hull construction

3.1 General

The hull of the Dykstra 110' Classic Sloop is built of aluminium.

The yacht is divided in forepeak, fore ship, midship, engine room and lazarette watertight compartments. The compartments are sealed by watertight bulkheads and watertight lead through of Roxtec.

The tanks are integrated in the bottom structure of the yacht. The deck is reinforced with inserts for deck equipment and winches.



Roxtec watertight bulkhead lead through

The aluminium keel consists of a bulb shape. An aluminium balanced spade rudder is fitted. The aluminium rudder shaft has aluminium foundations for hull and top bearing. The carbon fibre mast is keel stepped.



Separate information regarding the Roxtec watertight bulkhead lead through has been provided with the yacht. Please study this information carefully.

3.2 Typical plate thickness and frames

Hull

Frame spacing:	500 mm
Hull plating below cwl:	8 mm
Side plating:	6 mm
Transom plating:	6 mm
Frames:	T130x8+80x8 mm
Tank top plating:	5 mm

Deck

Deck plating:	5 mm
Deck inserts:	15 mm
Deck plating in way of mast:	20 mm
Deck beams:	T100x6+60x6 mm
Deck girders:	T120x8+100x12 mm
Intercostal:	HP 50x5x12 mm

Superstructures

Frame spacing:	500 mm
Deckhouse plating:	5 mm
Deckhouse beams:	T70x50x6-7 mm

Watertight bulkheads

Watertight bulkhead plating:	5 mm
Watertight bulkhead beams:	Various

Plating and built profiles: ALU 5083 H321

Extrusions:

ALU 6082 T6



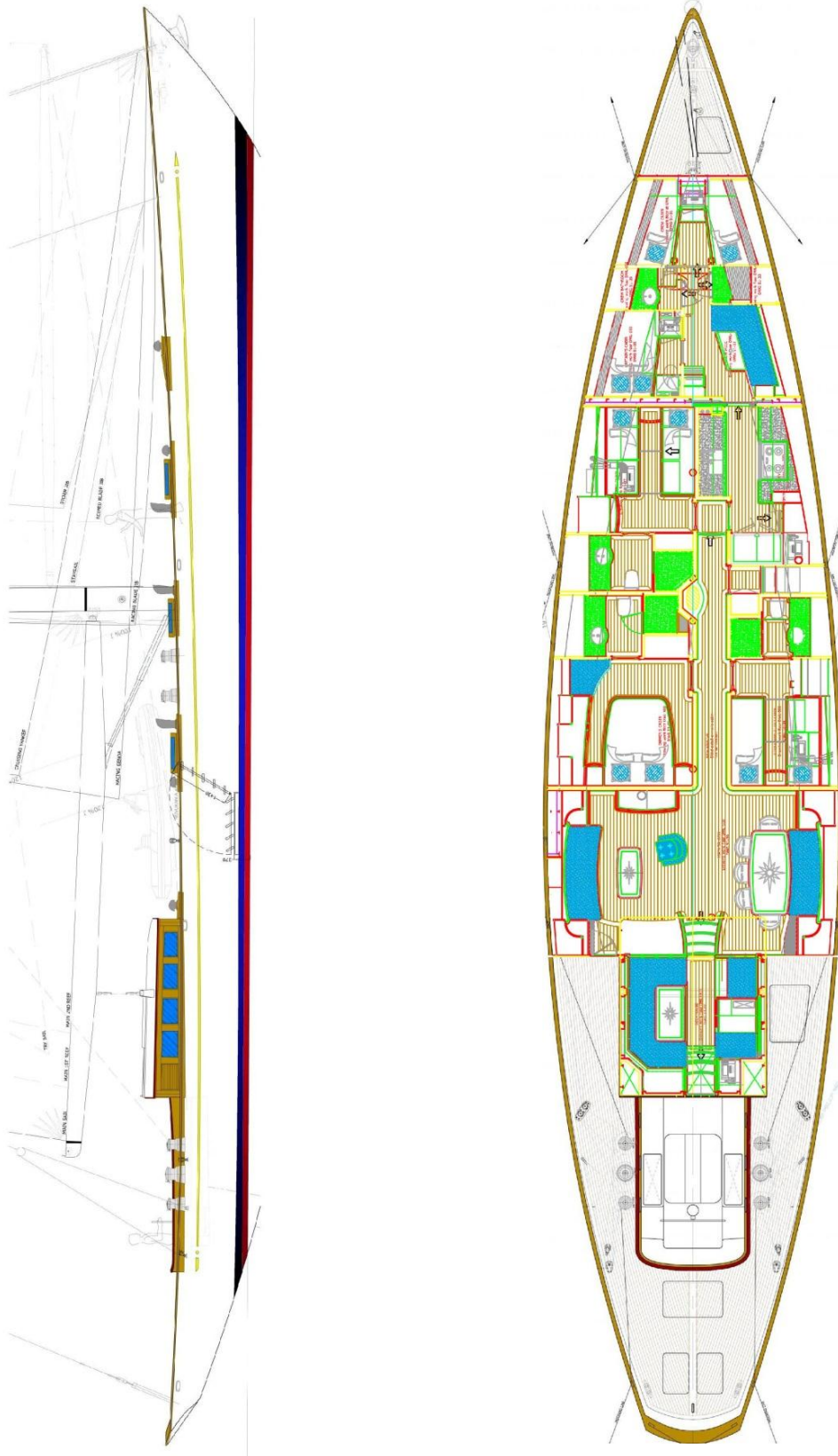
The "Structural" drawings can be found in the annexes of this manual.





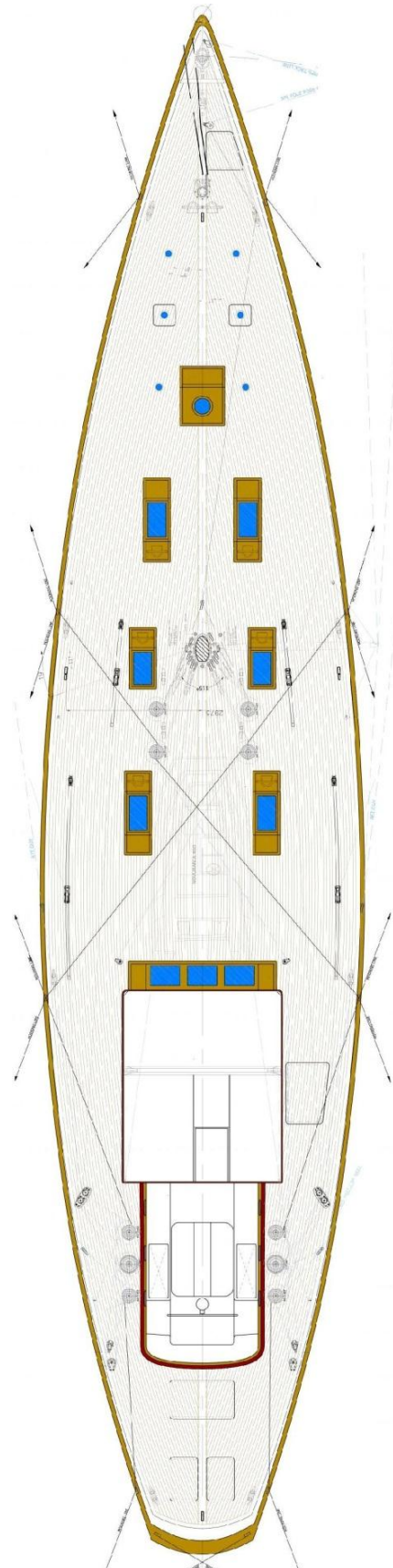
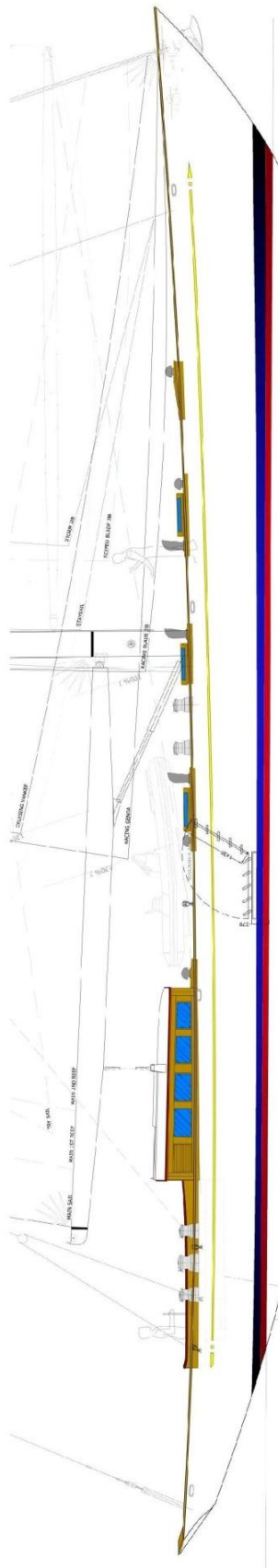
4 General arrangements

4.1 Profile & interior plan





4.2 Profile & deck plan





4.3 Sail and rigging plan

Rig type: Masthead sloop with cutter rig, fully battened mainsail with furling genoa and staysail. Keel stepped mast with three sets of spreaders.

Spars: Carbon fibre, with three sets of spreaders and rod rigging.

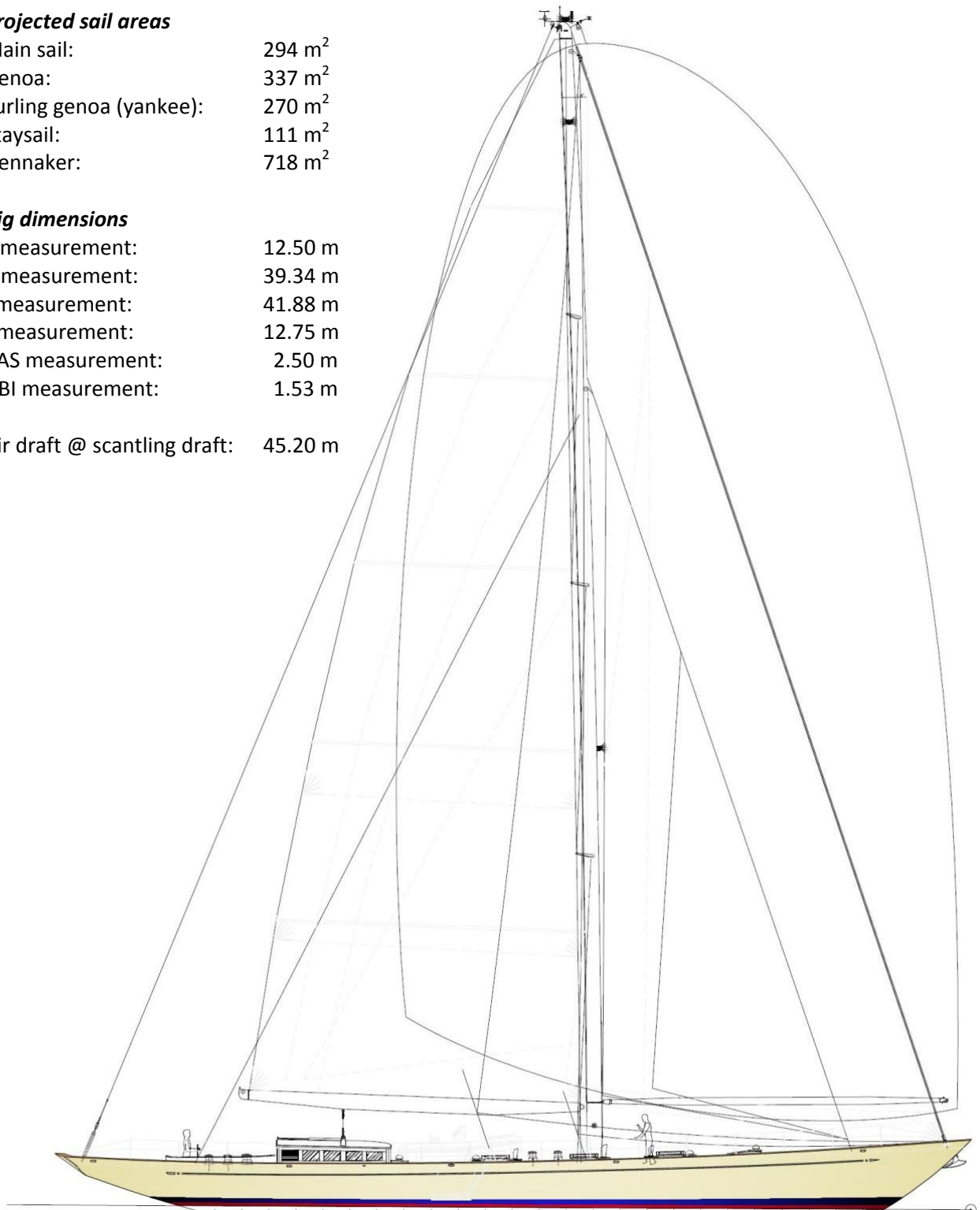
Projected sail areas

Main sail:	294 m ²
Genoa:	337 m ²
Furling genoa (yankee):	270 m ²
Staysail:	111 m ²
Gennaker:	718 m ²

Rig dimensions

E measurement:	12.50 m
P measurement:	39.34 m
I measurement:	41.88 m
J measurement:	12.75 m
BAS measurement:	2.50 m
HBI measurement:	1.53 m

Air draft @ scantling draft: 45.20 m





5 Installations

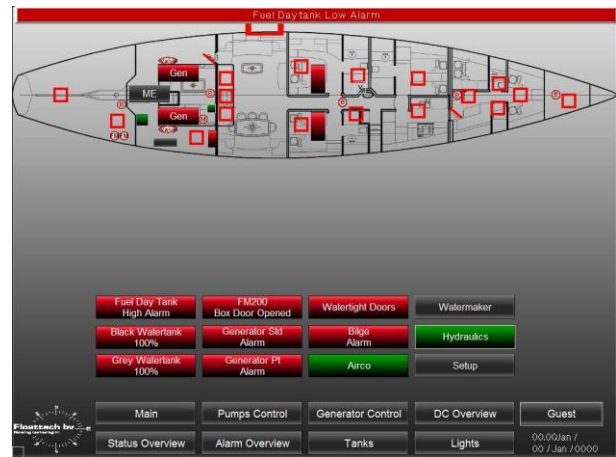
5.1 Engine room

The engine room is located below the deckhouse and the forward part of the cockpit. The bulkheads and all piping penetrations are watertight. The engine room is heavily insulated for noise and fire protection. The insulation material consists of Rockwool covered with white Bondal plating.

There are two entrances to enter the engine room:

- Hinging watertight door from the saloon
- Hatch at starboard side deck

All the engine room entrances are watertight. The watertight door and the deck hatch should always be closed while sailing. When the door or the hatch are opened a visual indication is shown at the PLC screen and at the steering position.



Door or hatch open warning at PLC screen



Watertight engine room door



Engine room hatch at starboard side deck



Warning:

- Keep all entrances to engine room closed when engine or generator is running.
- Make sure engine room ventilation is running before entering.
- Use protective hearing aids when entering the engine room.
- Notify other crewmembers when entering the engine room.
- Keep inflammable liquids away from engine compartment.
- Turn lights on before entering the engine room.
- Beware of moving parts and do not wear baggy clothing near the machine while in operation.



The "General system GA" drawing can be found in the annexes of this manual. This drawing gives an overview of the installed components in the engine room.



5.2 Engine room ventilation

The engine room ventilation is based on a maximum air consumption of the engine, generator and the amount of air changes per hour of the engine room. Behind the starboard side grills of the deckhouse a fan has been fitted. The engine room ventilation system is based on overpressure provided by the fan which blows fresh air in the engine room. The air leaves the engine compartment through the port side grills fitted in the deckhouse side.

When starting the engine or generator the engine room ventilation will be switched on automatically. 10 minutes after shutting down the engine or generator the engine room ventilation will be automatically switched off. The engine room ventilation can be switched on and off manually at the PLC screen.

In the engine room ventilation ducts A-60 fire dampers are installed that are automatically controlled by an electrical thermal release sensor mounted on the side of the ventilator. In case of a power failure the fire dampers can be manually opened by using a key. The fire fighting monitoring system is installed in the saloon at starboard and gives an alarm as soon as a fire is detected.

Engine room blower:

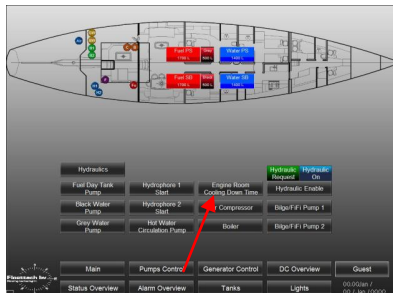
Brand: Witt & Sohn
Model: A-MU5/V0.78/355/G/3
Capacity: 4000 m³/hr
Serial nr.: 42922.1

Flame damper Pt:

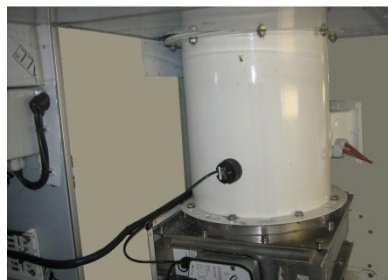
Brand: ActionAir
Model: 350 dia
Serial nr.:

Flame damper Std:

Brand: ActionAir
Model: 350 dia
Serial nr.: 00165134



Engine room ventilation blower control at PLC screen



Engine room ventilation inlet fan with fire dampers



Engine room ventilation outlet fire damper



Electrical thermal release for automatic operation of fire damper



Engine room ventilation grill at side of the deckhouse



Fire fighting monitoring system panel installed in the saloon



The "Engine room ventilation" drawing can be found in the annexes of this manual. This drawing gives an overview of the installed components in the engine room.



Separate information regarding the engine room ventilation blowers and the ActionAir flame dampers has been provided with the yacht. Please study this information carefully.



5.3 Main engine

5.3.1 Main engine type

The Dykstra 110' Classic Sloop "Annagine" is equipped with a Volvo Penta D7A-B TA engine.

Main engine:

Brand: Volvo Penta
Model: D7A-B TA
Power: 148 kW / 2300 RPM
Serial nr.: 5310805349

Engine data read out is available at the starboard panel in the cockpit.



Main engine



Main engine panel



When working on the main engine it is advised to disconnect the engine from the starting batteries to prevent accidental starting. This can be done by turning the main engine power switch into the OFF position. The switch is located at the main DC panel box direct behind the engine room door.



Separate information regarding the Volvo Penta D7A-B TA engine has been provided with the yacht. Please study this information carefully.

5.3.2 Engine alarm

The engine alarm panel is fitted behind the engine in the engine room. In case of an engine alarm an acoustic signal will sound in the cockpit.

If possible, stop the engine immediately if an alarm sounds to avoid further damage. The engine will automatically shut down when an over speed or an oil pressure alarm occurs.



During operation of the alarm panel watch out for rotating components and hot surfaces.



Main engine panel



5.3.3 Engine control

To start the main engine:

1. Check if cooling water inlet valve (on the central sea water inlet) is open.
2. Check if cooling water outlet valve (on the central sea water outlet) is open.
3. Check if the exhaust gas valve (in the lazarette) is open.
4. Check if the fuel valve at the day tank is open.
5. Check the oil level in engine and transmission.
6. Check coolant level.
7. Switch the engine starting battery main switch ON.
8. Put gearbox control lever in NEUTRAL (lever in the cockpit).
9. Start the engine with the starting key at the engine panel (Std panel in cockpit).

To stop the main engine:

1. Put gearbox control lever in NEUTRAL (lever in the cockpit).
2. Leave engine running for 5 to 10 minutes (cool down period).
3. Push the stop button on the engine panel at the panel (Std panel in cockpit).



NOTE: Should the engine not start when the “starting key” is turned for 10 – 20 seconds, release switch and wait 30-60 seconds; repeat the previous procedure. Never run the starter motor for than 30 seconds at a time.



Never:

- Close main circuit switch whilst engine is running (risk of ruining regulator).
- Change circuit charge whilst engine is running.

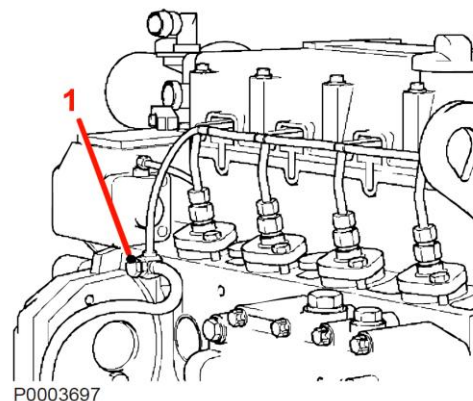


Before starting the engine make sure there is nobody in the water around the vicinity of the propeller and that nobody is in the engine compartment.

5.3.4 Bleeding the engine

The fuel system must be bled, e.g. after changing fuel filter, if the fuel tank has been run dry and after long stops.

1. Put a suitable vessel under the fuel return (1).
2. Loosen the bolt.
3. Turn the engine over with the starter (max. 20 sec.) until fuel free of bubbles comes out.
4. Tighten the bolt.
5. Start the engine and make sure there are no leaks.



P0003697



Do not loosen the injector delivery pipes. If the delivery pipes are loose they must be changed.



5.4 Propulsion system

5.4.1 General

The propulsion line is of the type V-drive. The engine is located at the aft side of the engine room and drives the sliding shaft which is connected to the gearbox. The gearbox is located forward in the engine room and drives the water lubricated propeller shaft. The propeller loads are absorbed by the installed thrust bearing installed behind the gear box. For the highest propulsive efficiency a controllable pitch propeller has been installed.



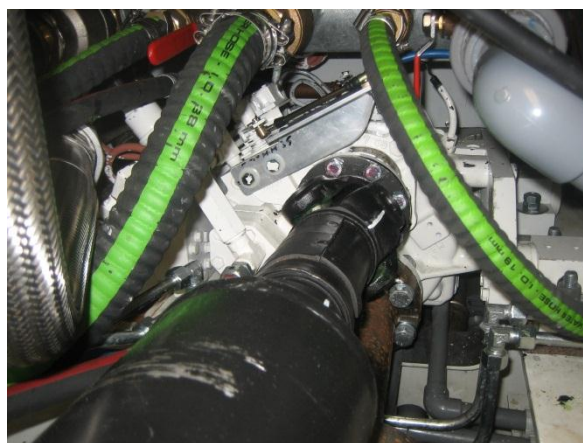
The "Stern gear installation" drawing can be found in the annexes of this manual. This drawing gives an overview of the installed components in the engine room.

5.4.2 Gearbox

The Twin Disc gearbox is installed forward in the engine room and is connected by a sliding shaft with the engine (V-drive).

Gearbox:

Brand: Twin Disc
Model: MG 5050V
Power: 2.50: 1
Serial nr.: 100204



Gearbox



Separate information regarding the Twin Disc MG 5050V gearbox has been provided with the yacht. Please study this information carefully. The manual contains a maintenance record which has to be followed and completed after maintenance.

5.4.3 Controllable pitch propeller

Controllable pitch propellers (CPP) for marine propulsion systems have been designed to give the highest propulsive efficiency over a broad range of speeds. By adjusting the blade pitch, the optimum efficiency can be obtained and fuel can be saved. Also, the controllable pitch propeller has a "vane"-position, which is useful with combined sailing / motor vessels as this position gives the least water resistance when under sail.

The advantages of the controllable pitch propeller are:

- Improved manoeuvring, especially when going astern and at low speeds.
- The optimum loading for the engine can be obtained in all operational conditions.
- Maximum power at all speeds by reducing the pitch.
- It is possible to change the pitch at any speed/power condition.
- Reduced fuel consumption.
- Little water resistance in sailing position.
- When using both sail- and engine power at the same time it is possible to change the pitch to utilize the combination of both wind and engine to the max.

The pitch of the propeller can be controlled with the joystick at the steering position. When under sail the "Sailing mode" indication light will tell when the blades of the propeller are in the vane-position. It is possible to motor astern by turning the blades, however it is recommended to use the engine morse control.



The controllable pitch propeller unit is hydraulically controlled and powered by the main hydraulic system (see chapter 5.20).



Controllable pitch propeller



Controllable pitch propeller unit



Controllable pitch propeller control at steering position and sailing mode indication light



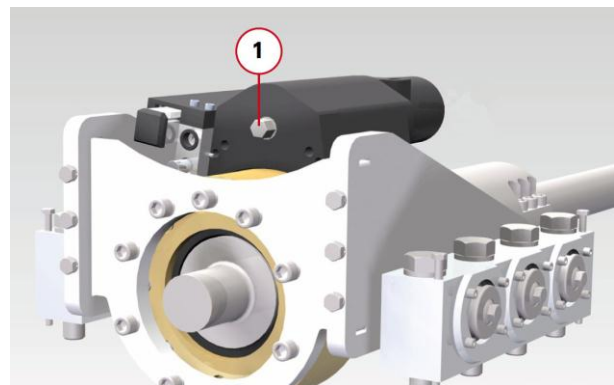
Manual Pitch adjustment:

In case of failure of the hydraulic components or control system it is possible to do pitch adjustment by hand as follows:

1. Make sure there is a by-pass between pressure and return connection of the eaton motor. This can be done by putting the hydraulic valve of the pitch control in the middle position.
2. To adjust the pitch manually put a wrench on shaft (1) and turn the shaft by hand.



Block valves platform and mast winches located in forward part engine room



Controllable pitch propeller unit – manual adjustment



Separate information regarding the Mekan controllable pitch propulsion system has been provided with the yacht. Please study this information carefully.



5.4.4 Stand-by seal

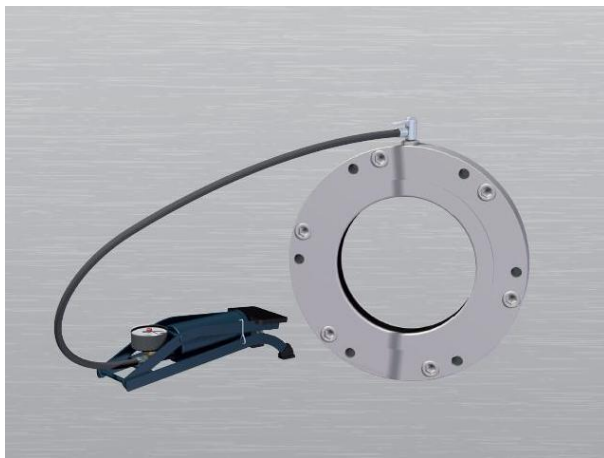
On the propeller shaft a stand-by seal is installed. When problems arise with the main seal, the stand-by seal should be inflated to prevent water coming into the yacht. When the stand-by seal is inflated the shaft should not be rotated as this will damage the seal.

The stand-by seal pump is stored with the bicycles in the lazarette.



Warning!

Do not rotate the shaft when the stand-by seal is inflated.



Stand-by seal principle



Stand-by seal mounted at stern tube



Separate information regarding the stand-by seal has been provided with the yacht. Please study this information carefully.





5.5 Generators

5.5.1 Generators type

Two Northern Lights M944W.5, 26kW at 1500 rpm, are installed in the engine room. The generators are equipped with local engine control panels and are installed in manufacturers supplied sound shields which are flexible mounted on the generators foundation.

The installed generators supply power to the following systems:

- Alternating Current (AC) electrical system
- Hydraulic system by use of PTO's (power take of)



Generator

During normal use of yacht one generator is for powering the electrical system and the other generator can be used for powering the hydraulic system. In case a greater demand of power is required for one of the systems the second generator can be switched on.

For the electrical system each generator has his own bus bar which are separated from each other when the electrical installation is powered by both generators. In case the electrical system is powered by one generator the two bus bars are connected to each other.

When using the bow thruster both generators are needed for powering the hydraulic system. In this case the generator for powering the electrical system will be automatically switched to the hydraulic mode for a period of 15 minutes.

Pt generator:

Brand: Northern Lights
Model: M944W.5
Capacity: 26kW at 1500 rpm
Serial nr.: 9444-40577C

Std generator:

Brand: Northern Lights
Model: M944W.5
Capacity: 26kW at 1500 rpm
Serial nr.: 9444-40575C



Separate information regarding the Northern Lights M944W.5 generators has been provided with the yacht. Please study this information carefully.

5.5.2 Generator alarm

Each generator is fitted with a system to protect it from high water temperature or low oil pressure. Generator sets have shutdown systems to stop the engine. The alarm will be monitored by the PLC system.

The PLC system will also monitor overcurrent of one of the generators. In case an overcurrent occurs the alarm will be listed on the PLC screen.



5.5.3 Generator control

The generators can be switched on/off at the PLC screen or with the local engine control panel. The PLC gives the option for starting the generator for the electrical system or for the hydraulic system.

To start the generator:

1. Check if cooling water inlet valve (on the central sea water inlet) is open.
2. Check if cooling water outlet valve (on the central sea water outlet) is open.
3. Check if the exhaust gas valve (in the lazarette) is open.
4. Check if the fuel valve at the day tank is open.
5. Check the oil level in generator.
6. Check coolant level.
7. Switch the engine starting battery main switch ON.
8. Start the generator with local control panel in the engine room or the "generator on" button on the PLC screen.

To stop the main engine:

1. Shut down the generator with local control panel in the engine room or the "generator off" button on the PLC screen.



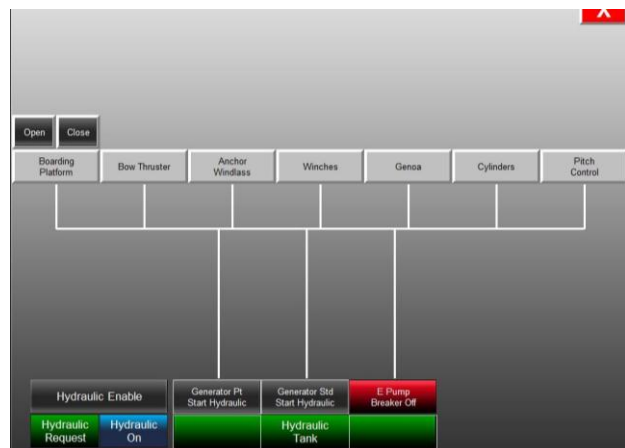
Generator cooling liquid tank



Generator local engine control panel in the engine room



*Generator (electrical mode)
control at PLC screen*



*Generator (hydraulic mode)
control at PLC screen*



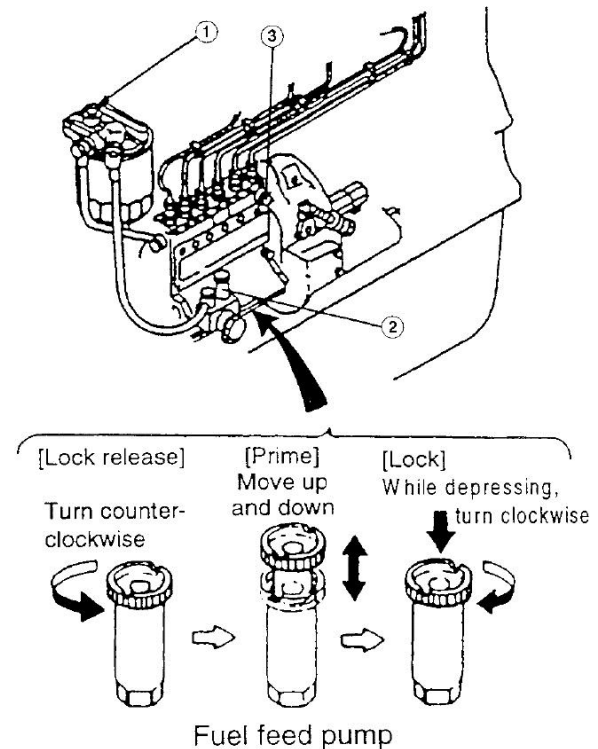
5.5.4 Bleeding the generators

Fuel system air bleeding may be needed when:

- After fuel has been added to a newly installed engine.
- A new fuel filter is installed.
- The engine has run out of fuel.
- The fuel lines, injection pump, or any other fuel system component has been removed and installed.

After changing the fuel filter, air only needs to be bled from the fuel filter. To do this:

- Loosen the air vent plug (1) on the fuel filter by about 1-1/2 turns. (Be sure to cover the vent with a cloth to prevent fuel from splashing.)
- Turn the priming pump cap on the fuel feed pump counterclockwise to unlatch it. Move the priming pump plunger (2) up and down.
- Close the air vent plug when no more air bubbles can be seen in the fuel flowing from the air vent plug hole.



To bleed air at the fuel injection pump:

- Turn the air vent plug (3) about 1-1/2 turns to loosen it. (Cover the vent with a cloth to prevent fuel from splashing.)
- Pump the feed pump cap up and down.
- When there are no air bubbles to be seen in the fuel flowing from the air vent plug hole, push down the priming pump cap and turn it clockwise to lock it in place.



Note: Do not close the air vent plug before locking the priming pump cap in place, because the internal pressure in the pump will prevent the priming pump cap from returning to the original position.

If the engine does not start after this bleeding process, loosen a fuel line at the injector while cranking the engine with the starter motor until pure fuel escapes. Then tighten the connections.

Do each line one-at-a-time. After the engine has started, use a piece of cardboard to look for fuel leaks.

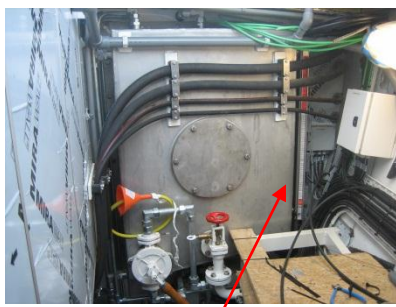


5.6 Fuel system

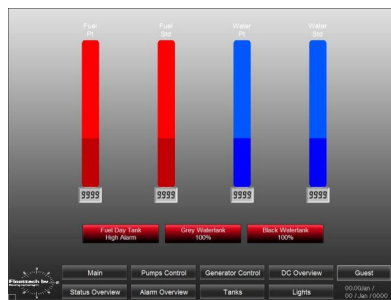
5.6.1 General

The two diesel tanks with a total capacity of 3400 litres are integrated in the bottom structure of the yacht. The fuel tanks are not connected to each other. In the engine room a day tank with a capacity of 240 litres has been installed at the starboard side. The ventilation lines of the diesel tanks are connected to each other and led to the mast of the yacht.

All tanks are provided with electronic gauges for monitoring the tank levels. The tank contents can be read out from the PLC screen. The day tank is equipped with an additional magnetic level gauge at the side of the tank.



Day tank with magnetic level gauge in the engine room at Std



Tank monitoring at PLC screen



Tank filling station with drain (aft)

5.6.2 Fuel distribution and transfer system

To transfer fuel from the main tanks to the day tank an electrical and a manual transfer pump have been installed in the engine room. The electrical transfer pump can be set to pump automatically by the PLC system once reaches a set level.

The fuel tank selection valve can be found behind the starboard sea strainer forward in the engine room. With this valve suction from the port side or starboard side fuel tanks can be selected.

The returns of the main engine and both generators are routed back to the day tank. The day tank is provided with an overflow into the selected main tank.

Fuel transfer pump:

Brand: Sterling Sihi

Model: AOHA1201AAAFJOAO

Capacity: approx. 2.5 m³/h @ 1450 rpm

Serial nr. : TR1351357-01



Manual or electrical pump selection valve located under day tank



Electrical fuel transfer pump located below day tank



Manual fuel transfer pump located at the day tank



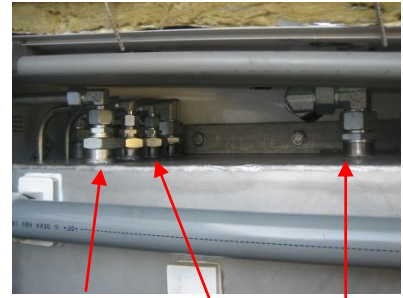
Separate information regarding the Sterling Sihi fuel transfer pump has been provided with the yacht. Please study this information carefully.



Pt or Std fuel tank selection valve located behind the Std sea strainer



Pt & Std generator and engine fuel distribution manifold



Fuel overflow, returns & ventilation lines to day tank

At the bottom of the day tank two drains are fitted. With the port valve the day tank can be drained into one of the main tanks. In case fuel must be transferred from one main tank to the other this valve must be opened.

The other drain is meant for water drainage. It is recommended to plug of this drain to prevent accidentally spillage of diesel.



Day tank drain to main tanks valve

5.6.3 Refuelling

The filling points are located on the side decks to fill the portside and starboard fuel tanks respectively. When refuelling open the additional ventilation lines fitted to each box to allow the air to escape when filling. In the filling stations a drain connected to the central draining system has been installed. This drain has to be plugged off during bunkering to prevent spillage of fuel overboard.

When refuelling never allow anyone to smoke in the vicinity of the yacht or the dockside where the fuel is being piped from. If fuel is spilt it should be cleaned up promptly and the waste disposed of ashore. If a little diesel fuel is spilt into the water then washing up liquid can disperse the fuel.



- Do not refuel while the engine is running.
- Do not smoke during refuelling.
- The filling stations are only suitable for gravity filling.
- During bunkering the drain of the filling station has to be plugged off to prevent spilling off fuel overboard.



5.6.4 Fuel filters

In the fuel transfer line to the day tank a double fuel filter has been installed to ensure clean and filtered diesel in the day tank. The double fuel filter has been installed below the hydraulic buffer tank next to the day tank.

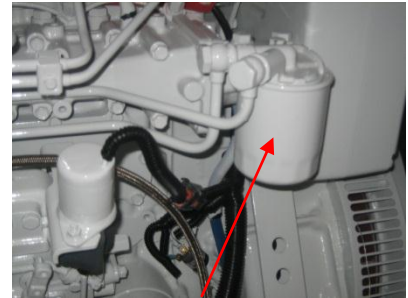
The fuel filters of the engine and the generators are supplied by respectively Volvo Penta and Northern Lights and are mounted close to the machineries.



Fuel main filter installed below the hydraulic buffer tank



Main engine fuel filter



Generator fuel filter

Fuel main filter:

Brand: Separ
Model: SWK 2000/10/um
Capacity: 10 ltr/min

Fuel main engine filter:

Brand: Volvo Penta
Part nr: Volvo 864315

Fuel generator filters:

Brand: Northern Lights
Part nr: 944W24-51201



Separate information regarding the fuel filters has been provided with the yacht. Please study this information carefully.

5.6.5 Emergency fuel shut offs

The fuel distribution manifolds at the day tank are fitted with emergency fuel shut offs. The fuel shut offs can be operated from the deck. In case of an emergency (e.g. fire in the engine room) these valves must be closed as soon as possible.



Only operate the emergency fuel shut offs in case of an emergency as these valves will shut off the main engine.



Emergency fuel shut off in engine room



Emergency fuel shut off handle in lazarette



The "Fuel diagram" and the "Vent and fill diagram" can be found in the annexes of this manual.



5.7 Sea water system

5.7.1 Electrical actuators of seacocks

Electrical actuators are fitted on the central sea water inlet manifold and the central seawater overboard stack.

The control box of the electrical actuators is fitted in the lazarette next to the engine room fire fighting control panel.

In case of an electric failure the electrical actuators can be manually operated. Pull out and turn the yellow marked handle.



Don't operate the electrical actuators of the seacocks manually when the electricity is switched on.



Control box of the electrical actuators in the lazarette



Electrical actuator of seawater outlet manifold



Electrical actuator of seawater outlet manifold

5.7.2 Central seawater inlet manifold

The central sea water inlet manifold is located forward of the engine room. At each side of the manifold a seacock, electrical actuators and a sea water strainer has been installed.



Close the manual seacocks before opening the sea water strainers for cleaning.



Sea water strainer located at Pt en Std forward in the engine room



The manifold provides seawater to the following systems (from port- to starboard side):

1. Bilge (or fire fighting) pump starboard
2. Fire fighting (or bilge) pump port side
3. Port side generator
4. Main engine
5. Starboard side generator
6. Chiller sea water pump 1
7. Chiller sea water pump 2

Watermaker has separate through-hull fitting located in bottom next to starboard generator.



Central seawater inlet manifold located forward the engine room

5.7.3 Central seawater overboard stack

The central sea water overboard stack is located at the aft side of the engine room. The following systems drain to the overboard stack:

1. Main engine
2. Port side generator
3. Starboard side generator
4. Sump tank located in engine room
5. Black water overboard
6. Grey water overboard
7. Bilge system
8. Chiller cooling water
9. Deckhouse, swallow nest and engine room hatch drains
- Spare (plug)



Central sea water overboard stack



5.8 Exhaust system

5.8.1 Engine

The engine cooling water is taken from the central sea water inlet manifold located forward in the engine room. To cool down the exhaust temperature the cooling water is injected into the exhaust line. The engine has a wet/dry exhaust system which means that the cooling water is separated from the exhaust gasses in a water separator which is located in the engine room. The exhaust gasses run through the exhaust hose to the transom of the yacht at portside. The cooling water drains from the separator and flows overboard through the central sea water overboard stack.



Main engine exhaust lift silencer located in the engine room



Main engine exhaust separator located in the engine room



Main engine exhaust overboard valve located in lazarette

5.8.2 Generators

The generator cooling water is taken from the central sea water inlet manifold located forward in the engine room. To cool down the exhaust temperature the cooling water is injected into the exhaust line. The generators have a wet/dry exhaust system which means that the cooling water is separated from the exhaust gasses in a water separator which is located in the engine room. The exhaust gasses run through the exhaust hose to the transom of the yacht. The cooling water drains from the separator and flows overboard through the central sea water overboard stack.



Pt Generators exhaust lift silencers located in the engine room



Generator exhaust separators located in the engine room



Generator exhaust overboard valves located in lazarette



The raw water cooling system should be protected against freezing at sub- zero temperatures.



The “Exhaust systems” and the “Seawater diagram” can be found in the annexes of this manual.



Separate information regarding the Halyard exhaust system has been provided with the yacht. Please study this information carefully.



5.9 Fresh water system

5.9.1 General

Two identical fresh water tanks of approximately 1700 litres each are fitted in the hull of the yacht under the floor in the saloon. The tank ventilation lines are led to the mast of the yacht. Each tank is provided with tank level indicators, which can be seen on the PLC screen.

One can select which tank is used by opening or closing the corresponding tank with the selection valves located between the Std generator and the hydraulic reservoir tank.

From the water tanks the water is pumped in the system and pressurized by the hydrophore pumps via a pressure tank to the consumers (toilets; taps; showers; dishwasher and washer/dryer). The filling points of the tanks are located on each side of the deck.



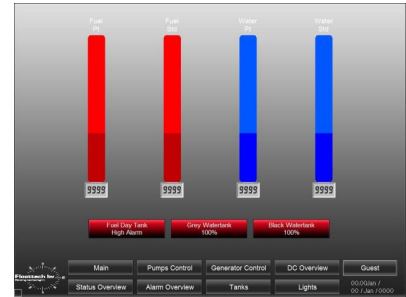
Fresh water filling points located on each side of the deck (forward)



Fresh water hydrophores located in aft side of engine room at Std



Fresh water pressure tank located in aft side of engine room at Std



Tank level indicators at the PLC screen



The “Fresh water diagram” and the “Vent and fill diagram” can be found in the annexes of this manual.

5.9.2 Hot water circulating system

Hot water to the consumers is provided by a hot water circulating system to ensure quick supply of hot water to all the consumers. The water is heated by the 150 litre boiler installed in the engine room. The hot water pump circulates the water in a loop of heavily insulated piping to all the consumers on board. Each consumer has his own dedicated valve to close or reduce the hot water capacity.

Hot water circulating pump:

Brand: Grundfos
Model: UPS 32-80 B 180

Hot water boiler:

Brand: Flamco
Model: ESP 150 ltr
Serial nr.: P 070138/01

Heat exchanger circulation pump:

Brand: Grundfos
Model: UPS 25-50 180
Serial nr.: 96281432



Separate information regarding the circulation pumps and the hot water boiler has been provided with the yacht. Please study this information carefully.



The Flamco hot water boiler heats the water by the electric heating element.

The hot water boiler and the hot water circulation pump have to be switched on/off at the PLC screen.

In case of a failure of the electric heating element in the boiler, the water can be heated with warm water from the heat exchanger of one of the generators. A pump circulates the water in a closed system through the heat exchanger of generator to the heat exchanger in the boiler. It is recommended to use one generator (in electrical mode) to heat the boiler by opening the heat exchange valve in the generator box. Ensure that the heat exchange valve of the other generator is closed.



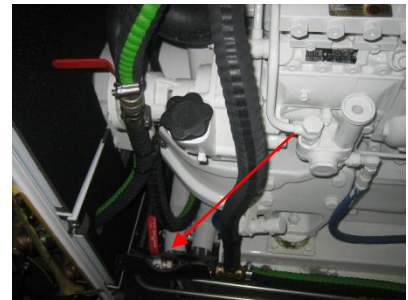
150 ltr hot water boiler located forward in the engine room at Pt



Hot water circulation pump mounted on the side of the boiler



Boiler hot water circulation pump of generator heat exchangers located under Pt floor in the engine room



Heat exchanger valve of the generator

5.9.3 Water maker

The water maker is installed in the engine room at the starboard side. It has his own sea water inlet with seacock located forward in the engine room almost midships left of the starboard generator. The seawater is pumped by two pumps (one for back-up) through a filter to the water maker.

Water maker:

Brand: Schenker
Model: 210M220
Capacity: 210 litre/hr
Serial nr.: 28LTSCR9-15-05

Sea water pump 1:

Brand: Cantoni C.
Model: 8 LH 50 L-4
Serial nr.:

Sea water pump 2:

Brand: Cantoni C.
Model: 8 LH 50 L-4
Serial nr.: 316660

The produced water from the water maker drains through a hardness filter to a Y-valve located in the engine room next to the watermaker. With this valve you can select which water tank has to be filled.

Special attention should be taken to the maintenance of the water maker. Please follow the manufacturers recommended instructions. A special hose connection for flushing the water maker has been installed in way of the sink in the engine room at starboard.



To prevent damage the Schenker water maker should be pickled if the system is not going to be used for an extended period.



Schenker water maker located in the engine room at starboard



Water maker sea water inlet located left of the starboard generator



Sea water pump with filter located left of the starboard generator



Second sea water pump located next to the starboard generator



Water maker control box located above the water maker



Water maker tank selection valves & hardness filter located in engine room



With the tank selection valves it is possible to choose to which tank the desalinated water flows. During filling of the water tank by the water maker, always keep at least one of the water maker valves in the 'open' position.

Make sure that the water maker seawater inlet and outlet seacocks are opened when the water maker is running.



Separate information regarding the Schenker water maker has been provided with the yacht. Please study this information carefully.



The "Fresh water diagram" and the "Seawater diagram" can be found in the annexes of this manual.





5.10 Grey water system

5.10.1 General

A grey water tank of approximately 500 litres is fitted in the hull at port side of the yacht under the floor in the saloon. The tank ventilation line is led to the mast of the yacht. The grey water tank is equipped with a level sensor and alarm. The read-out is at the PLC screen at the navigation station.

All water from the washing basins, sinks, showers, dishwasher, washing machine and grey water collection boxes drain away through the central grey water line to the tank. The central grey water line is located under the corridor floor.

There are two ways to empty the grey water tank:

1. By use of the grey water pump as installed in the engine room. Pumping the water overboard through the central sea water overboard stack located in the engine room.
2. By use of the deck pump out suction fitting.

Grey water pump:

Brand: BBA pompen & buizen
Model: B40 BVBMCM+m+Sc
Capacity: 24 m³/hr
Serial nr: 09-1915



Tank content read out at PLC screen



Grey water pump located in the aft side of the engine room at Pt



Central sea water overboard stack located in the engine room



Deck pump out suction fitting located at port side (middle)



Prior to sailing grey water tank should be emptied.

5.10.2 Grey water collection boxes

On board the yacht three grey water collection tanks have been installed to collect grey water.

Grey water collection tank - in the engine room:

- Deck house fridge + fancoil drain
- Chiller drains

Grey water collection tank - under floor owners cabin:

- Pt saloon fancoil drain
- Std saloon fancoil drain
- Owners cabin fancoil drain
- Guest cabin fancoil drain

Grey water collection tank - under floor Pt guest cabin:

- Pt guest cabin fancoil drain
- Captain's cabin fancoil drain
- Crew cabin fancoil drain
- Crew mess fancoil drain
- Galley fancoil drain
- Freezer + fridge drain
- Ice maker drain



Grey water collection tank in the engine room



Grey water collection tank under saloon floor Pt of stairs



Grey water collection tank under floor Pt guest cabin



Do not discharge the grey water tank close to shore or in any prohibited zone. Use harbour or marina pump-out facilities to empty the holding tank before leaving the harbour.



Caution: The grey water tank will overflow into the owners and starboard guest showers if overfilled.



The “Waste water diagram” can be found in the annexes of this manual.





5.11 Toilet system (black water)

5.11.1 Using the toilets

The toilets are Tecma Sanitnautico Silence 24V electrical toilets which flush with fresh water.

The toilets are operated by a small panel mounted adjacent to each toilet. The panel has two buttons marked 'before use' and 'after use'. The 'after use' button adds a little water before the macerator pumps the bowl dry and the 'before use' button fills the bowl with a little water.

The amount of water added to the bowl can be adjusted at the back of the control panel. The maximum use of water per flush is approximately 10 litres. Always use enough flushing water to avoid blockages.



Toilet



Toilet solenoid valve for flushing



Toilet flush panel



Use mild cleaning detergents as not to damage the rubber parts in toilets and pumps.



Separate information regarding the Tecma toilets has been provided with the yacht. Please study this information carefully.

5.11.2 Black water system

A black water tank of approximately 500 litres is fitted in the hull at starboard side of the yacht under the floor in the saloon. The tank ventilation line is led to the mast of the yacht. The black water tank is equipped with a level sensor and alarm. The read-out is at the PLC screen at the navigation station.

All black water from the four toilets drain away through the central black water line to tank. The central black water line is located under the corridor floor.



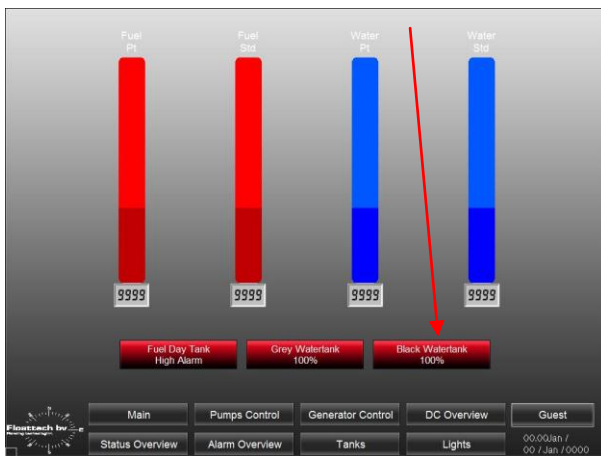
There are two ways to empty the black water tank:

1. By use of the black water pump as installed in the engine room.
Pumping the water overboard through the central sea water overboard stack located in the engine room.
2. By use of the deck pump out suction fitting.

The black water tanks should be cleaned on a regular basis by flushing water through the “waste” deck pump out suction fitting to prevent waste build up from blocking the lines.

Black water pump:

Brand: BBA pompen & buizen
Model: B40 BVBMC+m+Sc
Capacity: 24 m³/hr
Serial nr: 09-1393



*Tank content read out
at PLC screen*



*Black water pump located in the aft part
of the engine room at Std*



*Central sea water overboard stack
located in the engine room*



*Deck pump out suction fitting
located at starboard*



Do not discharge the black water tank close to shore or in any prohibited zone. Use harbour or marina pump-out facilities to empty the holding tank before leaving the harbour.



The “Waste water diagram” can be found in the annexes of this manual.



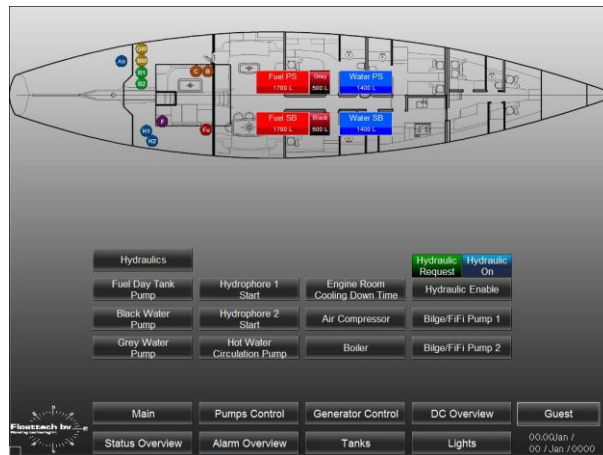
5.12 Bilge pumping system

5.12.1 Main system

Installed on board are two pumps which can be used for the bilge pumping system or for the fire fighting system. The starboard pump is normally used for the bilge system. The port side pump for the fire fighting system. The bilge (or fire fighting) pumps can be switched on/off at the PLC screen

The yacht is divided into the following bilge compartments:

- Fore peak
- Fore ship (crew compartment)
- Mid ship
- Engine room
- Lazarette



Bilge pump control at PLC panel

Port side pump:

Brand: Sterling Sihi
Model: VW 20 53A"C"
Capacity: 75 m³/h
Serial nr.: NL 1352001-01

Starboard pump:

Brand: Sterling Sihi
Model: VW 20 53A"C"
Capacity: 75 m³/h
Serial nr.: NL 1400560-01

The bilge manifold is located forward in the engine room at port side behind the boiler. The valves of the manifold are marked with their functions. The valves of the bilge compartment and the selected bilge pump have to be opened. It is recommended to select one bilge at the time in order to use the full capacity of the pump and to prevent air suction.

In the suction line to the starboard pump an extra bilge suction line with valve (normally closed) has been installed.

With the bilge pump overboard selection manifold located left of the main engine the running bilge pump has to be selected. As the starboard pump is used for the bilge system the aft valve of this manifold is normally opened. The bilge water is pumped overboard through the central sea water overboard stack.



Bilge suction inlet and bilge water detector



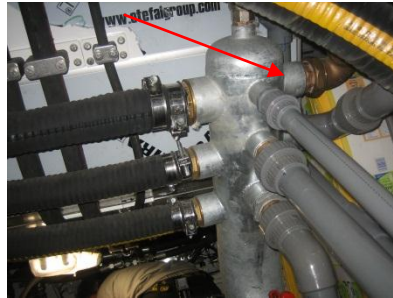
Bilge manifold located forward in the engine room at Pt



Bilge (or FiFi) pump located in aft side of engine room at Pt



Std (normally open) and Pt Bilge pump overboard selection manifold



Bilge overboard at central sea water overboard stack



Extra bilge suction point located in engine room fwd of Pt generator



Ensure that the valve corresponding with the running pump at the bilge pump overboard manifold is opened before switching on the bilge pump.



Warning: Do not let the bilge pump run dry longer than 5 minutes.



Warning: Check function of all bilge pumps at regular intervals. Clear pump inlets from debris.



Warning: When discharging bilge water always make sure there is no oil or other matter in the bilges which will directly pollute the surface waters.



Separate information regarding the Sterling Sihi bilge or fire fighting pumps has been provided with the yacht. Please study this information carefully.

5.12.2 Backup system

A portable diesel powered pump is located in the lazarette. In case of an emergency where the main bilge pumping system fails this portable pump can be used as backup system.

Diesel engine driven pump:

Brand: Wavo pompen
 Engine: Hatz 1B20
 Model: AP 220 1B20
 Capacity: 30 m³/hr
 Weight: 46 kg
 Serial nr.: 17111001 100321 099 536



Portable diesel engine driven pump installed in the lazarette



Warning: Do not let the portable pump run dry.

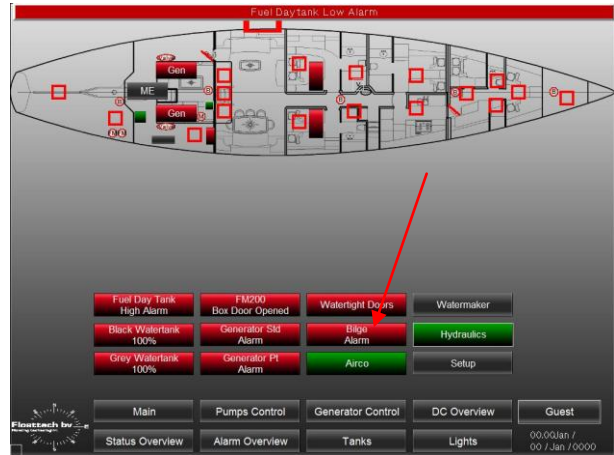


5.12.3 Bilge alarm

In each compartment a bilge alarm sensor has been installed. In case bilge water is detected an audible alarm sounds throughout the yacht. The alarm can be seen on the PLC screen.



Bilge water detector



Bilge alarm at PLC screen



The “Bilge-FiFi diagram” can be found in the annexes of this manual.





5.13 Deck wash system

5.13.1 Sea water deck wash

For washing the deck with sea water the fire fighting system (see also chapter 8.1) can be used. The fire fighting pump is switched ON/OFF at the PLC screen. Hose connections can be found in the forepeak and lazarette of the yacht.



*Fire fighting (or bilge)
Pumps*



Lazarette hose connection



Forepeak hose connection

5.13.2 Fresh water deck wash

A hose connection can be found at the anchor windlass for washing the deck with fresh water.

The fresh water deck wash valve is located in the forepeak.



Fresh water – deck wash valve



*Fresh water – deck wash
hose connection*



The “Fresh water diagram” can be found in the annexes of this manual.

5.14 Deck shower

At the swimming platform a fresh water deck shower has been installed.



Deck shower at swimming platform

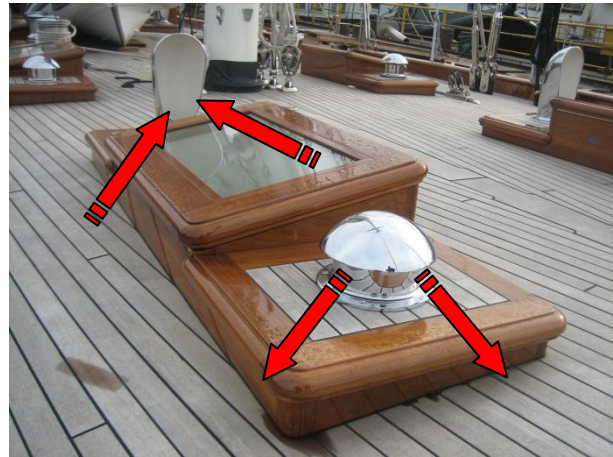


5.15 Interior ventilation system

5.15.1 Interior ventilation

Interior ventilation is provided by means of natural ventilation with dorades, mushrooms and hatches on deck.

Through the dorades fresh air is blown inside the yacht. The air can leave the yacht through the mushrooms provided in each cabin.



Dorades and mushroom on deck providing natural ventilation



Warning: All ventilation openings on deck are to be kept shut when under way.



Separate information regarding the Solimar hatches and OceanAir Skyscreens has been provided with the yacht. Please study this information carefully.

5.15.2 Galley ventilation

A fan is installed above the stove in the galley. The capacity is sufficient for evacuating smells and fumes originating from food preparation. The fan blows the air through the mushroom located above the galley on deck to the outside of the yacht.



Galley ventilation



Blower of the galley located above the stove

5.16 Galley equipment

The galley worktop is made of stainless steel. The following equipment is installed in the galley:

- Cook plate Gaggenau CI 49X
- Extractor hood Gaggenau AH900
- Oven Gaggenau EB 388
- Microwave Gaggenau BM 241
- Dishwasher Miele G7856



Separate information regarding the galley equipment has been provided with the yacht. Please study this information carefully.



5.17 Air conditioning – cooling & heating

5.17.1 Cooling the yacht

The chilled water air conditioning system consists of two chillers installed in the aft part of the engine room at starboard and fan coils installed throughout the vessel. One chiller is needed for the system. The system is normally in the automatic mode, where there is an automatic switch in the selection of the chiller in use. Coolant piping connect the chillers to the fan coils and the chiller seawater system.

The chiller consists of three major components: the compressor, the condenser, and the evaporator (or heat exchanger). The chiller is charged with a refrigerant that circulates throughout these components.

The fan coils consist of two major components: the blower and coil. The coolant circulates through the piping from the chiller to each fan coil and back. In cooling mode, warm cabin air is drawn across the fan coil by the blower. Heat is removed from the air as it passes across the coil. The cooled air is then blown back into the cabin. The heat from the cabin air is transferred to the coolant circulating through the coil. The warmed coolant is pumped back to the chiller.

The water is circulated through the chiller's evaporator where the heat is transferred to the refrigerant in the evaporator coil, thus cooling the "chilled" coolant. The "warmed" refrigerant gas is returned to the compressor, compressed, and then circulated through the outer tube in the chiller's condenser coil. Seawater is circulating through the condenser via the seawater system. The heat is transferred from the refrigerant to the seawater and pumped overboard taking the original cabin air heat with it. The circulating, "chilled" coolant is then pumped back through the piping to the fan coils in a continuous loop (as the cycle repeats).

At each fan coil a frequency controller has been installed to prevent power peaks in the electrical system when a fan coil is switched on.

The following fan coils are installed:

Location:	Type:	Cooling capacity:
Deckhouse	1 x Marine Air AT 9HV	9000 BTU/hr
Saloon	2 x Marine Air AT 18HV	18000 BTU/hr
Owner's cabin	1 x Marine Air AT 12HV	12000 BTU/hr
Guest cabin starboard	1 x Marine Air AT 9HV	9000 BTU/hr
Guest cabin port side	1 x Marine Air AT 9HV	9000 BTU/hr
Galley	1 x Marine Air AT 12HV	12000 BTU/hr
Captain's cabin	1 x Marine Air AT 6HV	6000 BTU/hr
Crew mess	1 x Marine Air AT 9HV	9000 BTU/hr
Crew cabin	1 x Marine Air AT 9HV	9000 BTU/hr



Chillers located in the engine room



Fan coils installed throughout the vessel



Fan coil control panel

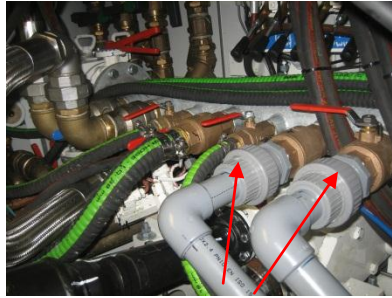


Procedure to start up the chillers:

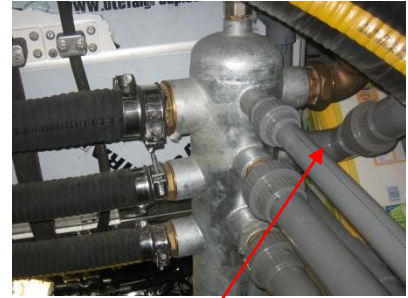
1. Open the sea cock valve of the seawater system (engine room).
2. Turn on the generator for power supply.
3. Set desired cabin temperatures at fan coil controls.
4. Turn all chillers on with the air-conditioning control box.
5. Verify that there is a good airflow from each fan coil.



Air-conditioning control box located in engine room behind the chillers



Chiller seawater inlets at manifold



Chiller seawater outlet



Chiller seawater pumps and Air-conditioning circulation pumps in engine room below chillers



Chiller control box located in engine room above chillers



Frequency controller installed at each fan coil



Warning: Never run one fan coil on cooling while running another one on heating.



Caution: Check every six months the amount of anti-freeze and keep the value on 10%. While filling up the coolant make sure that anti-freeze percentage stays constant on 10%.



5.17.2 Heating the yacht

Heating the yacht can be done by the reverse cycle method, where warm water is pumped from the module to the fan coils. For reverse cycle heating, the module's refrigerant flows in the opposite direction through a reversing valve, thus adding heat to the coolant loop, instead of removing it as in the cooling mode.



*Reverse cycle heating electrical boiler
in engine room next to the main engine*

Reverse cycle heating in combination with an electrical boiler is required depending on the outside water temperature:

- Outside water temperature $< 10^{\circ}\text{C}$: Reverse cycle heating in combination with an electrical boiler.
- Outside water temperature $> 10^{\circ}\text{C}$: Reverse cycle heating.



NOTE: Never run one unit on cooling while running another one on heating.



Separate information regarding the air conditioning system has been provided with the yacht. Please study this information carefully.



The "Chilled water diagram" can be found in the annexes of this manual.



5.18 Refrigerators and freezers

The following fridges and freezers are placed on board the yacht:

- Two doors fridge in the galley 500 litre +4 °C
- Two doors freezer in the galley 500 litre -20 °C
- Single door fridge in the deck house 170 litre +4 °C

The refrigerators and the freezers are cooled by a set of two compressors. Because only one compressor is needed for the system, the compressors are installed in a parallel configuration. To keep the hours of use equal you should switch over between the two compressors every month. The running hours of each compressor is given at the control panel.

Gas (Freon R404A) is cooled down by the compressors and pumped through the piping and cooling systems of the fridges and freezers.

The compressors are placed beneath the floor in the galley and are cooled with cooling water from the hull tank. A Grundfoss pump circulates the cooling water through the compressors and the hull tank.

In case there is a malfunction in the keel cooling system a back-up heat exchanger has been installed. By opening the back-up heat exchanger valves the compressor cooling water is cooled by the refrigerant of the air-conditioning system. Ensure that the chillers are switched on when the back-up heat exchanger needs to be used. The cool and freeze system and their components can be switched on/off at the control box located at starboard of the fridges and freezers in the galley.



Fridges and freezers in galley



Fridge in deckhouse



Cooling and freezing control box located in starboard locker next to fridges



Compressors beneath galley floor



Back-up heat exchanger valves



Separate information regarding the refrigerators and freezers system has been provided with the yacht. Please study this information carefully.



5.19 Steering system

5.19.1 General

The steering system is of the wire type manufactured by Edson. A wire runs from the quadrant on the rudder stock to block sheaves on port and starboard and then back to two block sheaves placed under the pedestal. At the pedestal the wire is connected to a chain that runs over a chain wheel.

Reduction in steering is 3 ¼ turns of wheel from port to starboard.



Quadrant and rudderstock bearings



Steering wheel



Make sure that no loose objects in the lazarette can obstruct the steering system.

5.19.2 Emergency steering arrangement

Should any problem occur with the steering system, an emergency tiller can be placed on top of the rudder stock. The emergency tiller is kept in the lazarette at Std.

Before the tiller can be placed on the rudderstock the circular metal plate in the cockpit floor should be removed.

Alternatively the Autopilot can be used as an emergency steering system.



Emergency steering arrangement



Storage location of emergency steering tiller



5.19.3 Autopilot steering arrangement

The autopilot steering machine consists of a hydraulic cylinder and an electrical controlled hydraulic pump. The steering course can be set and adjusted with the B&G pilot panel as installed at the navigation desk and at the steering position.



Autopilot control at navigation desk and steering position



Autopilot steering pump



Autopilot ram



Separate information regarding the B&G Auto pilot control has been provided with the yacht. Please study this information carefully.

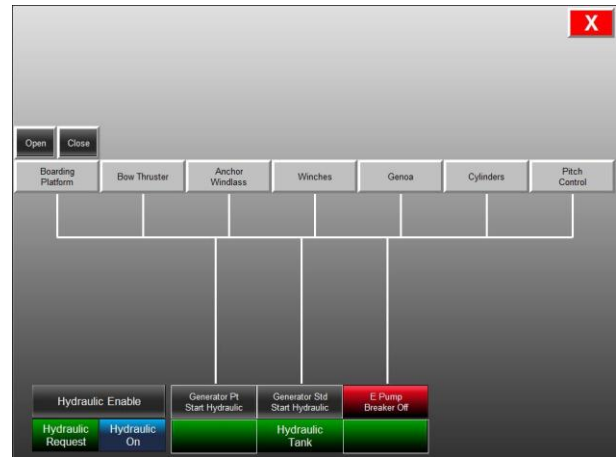


5.20 Hydraulic system

5.20.1 Hydraulic power supply

The hydraulic system consists of pumps installed on the power take offs (PTO) of both generators and an electrical “load sensing” pump of 2.2 kW located forward in the engine room at starboard. A buffer tank containing 120 litres of oil has been installed forward in the engine room at starboard (next to the diesel day tank).

On the hydraulic page on the PLC screen you can switch one of the generators or the electrical pump on/off.



Hydraulic page on PLC screen



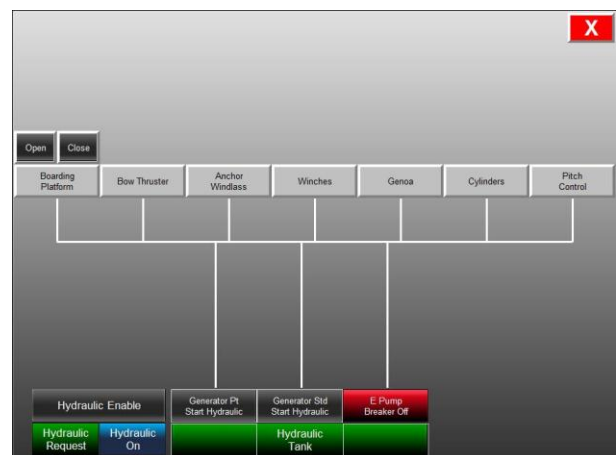
Pumps installed on the PTO's of the generators in the engine room



Electrical pump located in forward part of engine room at starboard



Block valves of hydraulic pumps

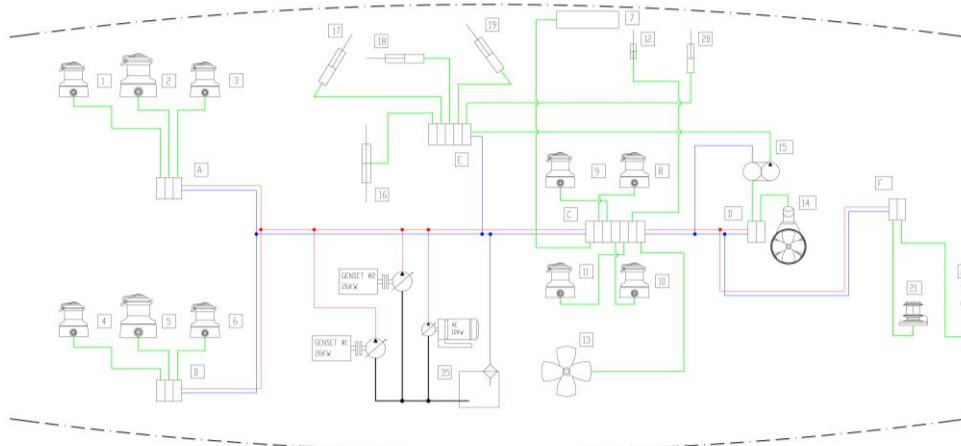


Hydraulic page on PLC screen



5.20.2 Hydraulic consumers

Several block valves have been installed for the following installed hydraulic consumers on board.



The following hydraulic components have been installed on board:

A Block valves Pt cockpit winches located in engine room at Pt

1. Runner winch Pt	Lewmar 88/3 SSHST SS SS	20 l/min	140 bar
2. Primary winch Pt	Lewmar 111/3 SSHST SS SS	20 l/min	140 bar
3. Main sheet winch Pt	Lewmar 88/3 SSHST SS SS	20 l/min	140 bar

B Block valves Std cockpit winches located in engine room at Pt

4. Runner winch Std	Lewmar 88/3 SSHST SS SS	20 l/min	140 bar
5. Primary winch Std	Lewmar 111/3 SSHST SS SS	20 l/min	140 bar
6. Main sheet winch Std	Lewmar 88/3 SSHST SS SS	20 l/min	140 bar



*Block valves Pt cockpit winches
in Pt engine room*



*Block valves Std cockpit winches
in Std engine room*

C Block valves mast winches, boarding platform and prop pitch control located in engine room forward

7. Boarding platform	Custom made		
8. Mast winch forward Pt	Lewmar 88/3 SSHST SS SS	20 l/min	140 bar
9. Mast winch aft Pt	Lewmar 88/3 SSHST SS SS	20 l/min	140 bar
10. Mast winch forward Std	Lewmar 88/3 SSHST SS SS	20 l/min	140 bar
11. Mast winch aft Std	Lewmar 88/3 SSHST SS SS	20 l/min	140 bar
12. Locking pins platform	Custom made	12 l/min	150 bar
13. Variable pitch control		12 l/min	150 bar



Block valves mast winches, boarding platform and prop pitch in engine room forward



Block valves mast winches, boarding platform and prop pitch in engine room forward

D Block valves bow thruster and pressure intensifier located below crew cabin floor

14. Bow thruster	Lewmar 400TAH	106 l/min	250 bar
15. Pressure intensifier	Lewmar	35 l/min	140 bar

E Block valves Navtec equipment located below crew cabin floor

16. Traveller cylinder	Navtec A254-030-JOOX	15 l/min	350 bar
17. Backstay cylinder	Navtec A250-SE-090	7 l/min	350 bar
18. Outhaul cylinder	Navtec A250-030-SE	7 l/min	350 bar
19. Boom vang cylinder	Navtec -090	7 l/min	350 bar
20. Furler cylinder	Navtec Reckmann	7 l/min	350 bar

F Block valves anchor windlass and genoa furler located in forepeak

21. Anchor windlass	Lewmar 5000	50 l/min	140 bar
22. Genoa furler	Reckmann	40 l/min	140 bar



Block valve of bow thruster and Navtec equipment located below crew cabin floor



Block valves of windlass and furler located in forepeak



5.20.3 Manual override of hydraulic system

With the installed handles on the block valves the hydraulic functions can be manually operated.

1. Press the PLC designation button on the side of the generator running in the hydraulic mode.
2. Press and held in the button on the aft side of the load sensing valves installed in the forward part of the engine room (behind the starboard sea strainer).
3. Operate the hydraulic equipment manually with the installed handles on the block valves. The Navtec block valves are equipped with red buttons, which has to be pressed and turned for operation.



PLC designation button on the side of generator local control boxes



Load sensing valves of hydraulic pumps



Separate information regarding the hydraulic system has been provided with the yacht. Please study this information carefully.



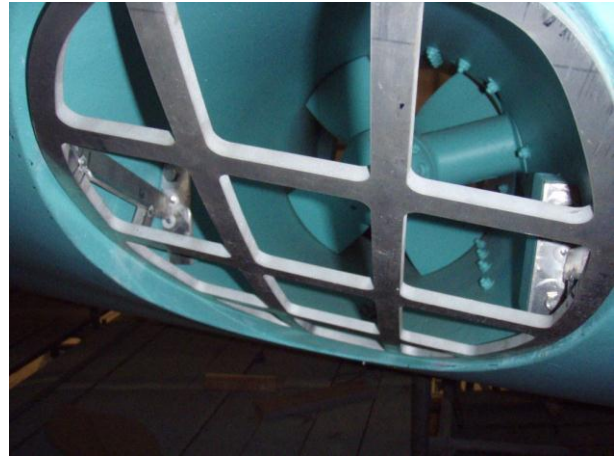


5.21 Bow thruster

The bow thruster is installed underneath the floor in the crew cabin. The bow thruster is hydraulically driven. You can operate the bow thruster with the buttons on the cockpit floor at the steering position.

Bow thruster:

Brand: Lewmar 400TAH
Stroke: 400 mm



Bow thruster

For operating the bow thruster both generators shall be running. In case one of the generator is in the electrical mode, it will be automatically switched over to the hydraulic mode for a period of 15 minutes.



Hydraulic bow thruster located underneath floor in crew cabin



Bow thruster operation buttons



WARNING: The bow thruster should not be operated close to swimmers as powerful suction of water is generated when in use.



Separate information regarding the Lewmar 4000TAH bow thruster has been provided with the yacht. Please study this information carefully.



5.22 Anchoring arrangement

The chain locker is located in the forepeak. The length of the chain is 130 metres. The chain diameter is 13 mm galvanised steel with a breaking load of 142 tons. The weight of the stainless steel plow anchor is 137 kg.

For lowering and weighing the anchor an hydraulic anchor windlass (Lewmar V8) has been installed on the foredeck. The remote control of this windlass can be found in the forepeak, next to the hatch opening.

Anchor windlass:

Brand: Lewmar
Model: V8
Serial nr:

Main anchor:

Brand: Manson plough
Model: SSP 300
Weight: 137 kg

Spare anchor:

Brand: Lewmar CQR
Model: 0056515
Weight: 110 kg

Ketch anchor:

Brand: Fortress
Model: FX-55
Weight: 14.4 kg



Anchor



Anchor windlass

The main anchor is operated by a hydraulic winch on the foredeck. Before dropping the anchor, the chain lock in front of the winch must be in the 'removed' position. Now slowly lower the anchor until the shaft is vertical by pressing the 'down' button next to the winch or on the remote control. You can now either drop the anchor by releasing the brake on the winch (after disengaging the drum) or slowly lower the anchor by keep pressing the 'down' button.

The bitter end is connected to the yacht (eye in chain locker) with a piece of rope which can be cut in case of an emergency and failure with the anchoring arrangement.

When anchoring in strong currents or winds it is recommended to attach a snuffer line on the chain to take the load off the winch.



Anchor windlass control box



Chain locker



Bitter end



To avoid personal injuries ensure that limbs, fingers and clothing are kept clear of the anchor rode and windlass during operation. Always ensure that there are no swimmers or divers nearby when dropping your anchor.



Separate information regarding the Lewmar 5000 windlass has been provided with the yacht. Please study this information carefully.



5.23 Deck winches and furler operation

The deck winches and the furler of the foresail can be operated by pressing the deck switches in the cockpit.

Facing toward the deck switches:

- Winch buttons: Left Slow
- Winch buttons: Right Fast

- Furler buttons: Left Clockwise
- Furler buttons: Right Counter clockwise



Cockpit winches and furler operation buttons

Functions of the winches:

- | | |
|------------------------|---|
| Aft cockpit winch: | For running backstay's / Staysail sheet |
| Mid cockpit winch: | For yankee sheet |
| Forward cockpit winch: | For main sheet |
| Mast winches | For halyards, reefing lines, etc. |



Winches at cockpit



Winches at mast



To avoid personal injuries ensure that limbs, fingers and clothing are kept clear of the deck winches during operation.



Separate information regarding the Lewmar winches has been provided with the yacht. Please study this information carefully.



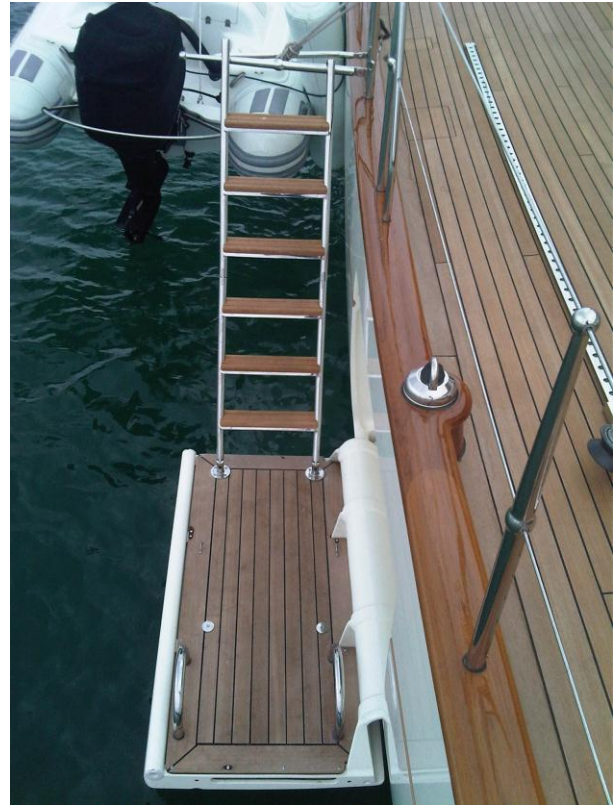
5.24 Boarding platform

A hydraulic controlled boarding platform is installed in the port side shell of the yacht.

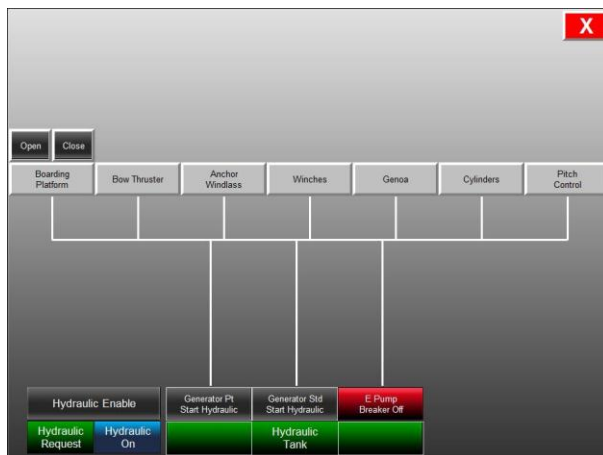
The boarding platform can be opened and closed by use of the PLC control or the remote control.



Warning: During closing the boarding platform ensure nobody is standing on the platform.



Boarding platform



Boarding platform control at PLC



Boarding platform remote control



5.25 Navigation lights

Anchor mode:

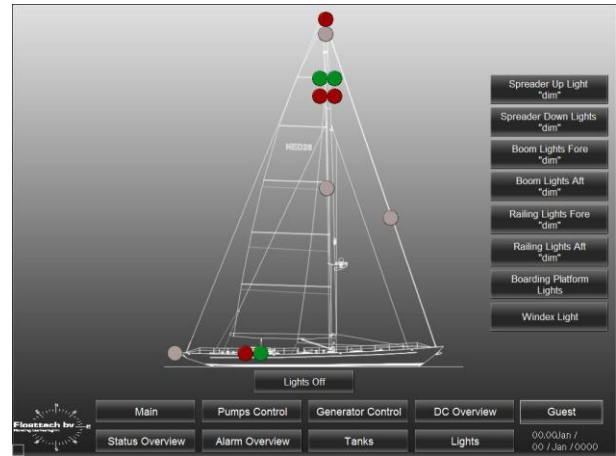
- Anchor light at bow

Sail mode:

- Port and starboard side lights
- Red above green mast lights
- Stern light

Motor mode:

- Port and starboard side lights
- Steaming light
- Stern light



Navigation lights at control panel

The switches of the navigation lights are located on the main PLC panel. By pressing one of the mode buttons the applicable lights are directly switched on. Individual lights can be switched on/off by pressing the light at the PLC touch screen.



Port and starboard side lights



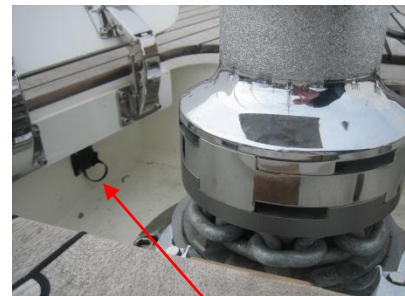
Red above green mast lights



Stern light



Steaming light



Anchor light fitting



The proper working of the navigation lights should be checked prior to each night sail. On the PLC control panel you can see if the navigation lights are functioning correctly.



5.26 Air horn and compressor

In the lazarette an air compressor has been installed for the air horn which is mounted in the mast. The air compressor can be switched on/off at the PLC screen. The air horn control button is at the steering position.

Air compressor:

Brand: Kahlenberg
Model: KA500
Serial nr.: 41641



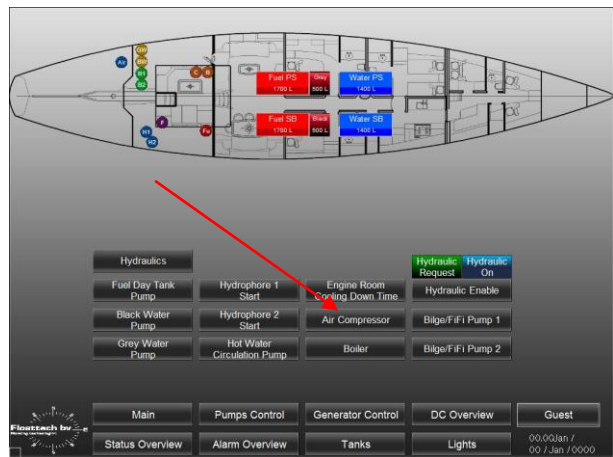
Double air horn



Air compressor with buffer tank located in the lazarette



*Air horn control
at steering position*



*Air compressor control
at PLC*



It takes several minutes to build pressure to use the horn. Ensure that there is pressure on the system before leaving the harbour.



6 Electrical installation

6.1 Alternating current system

The 3 phase 400V alternating current system can be powered by the shore power, the generator or by the service batteries via the installed inverters.

6.1.1 Shore power supply

The 32A shore power inlet is fitted in the lazarette at the starboard aft side of the yacht. Three light indications show if there is power on each phase. A 32A isolation transformer has been installed to separate the ships ground and the shore ground. The isolation transformer is located in the forward part of the lazarette.



*Shore power inlet located
in the lazarette at Pt*



*Isolation transformer located
in the lazarette forward at Pt*



Separate information regarding the Exendis isolation transformer has been provided with the yacht. Please study this information carefully.

6.1.2 Generator power supply

At the PLC each generators can be switched on in the electrical mode. For more information regarding the generators see chapter 5.5.



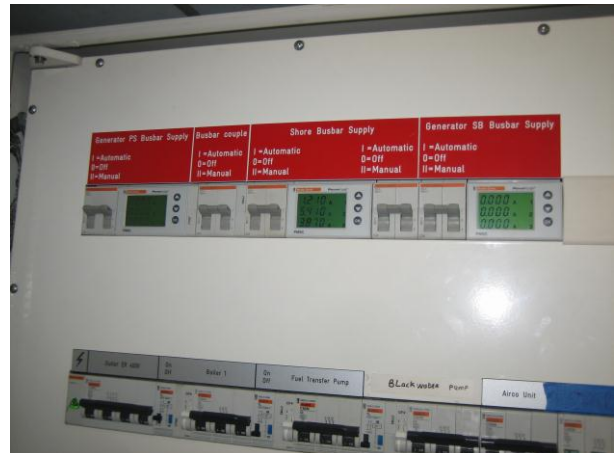
*Generators installed
in the engine room*



AC control at PLC



The AC main switch board is designed in a manner that allows one generator to supply all vessels loads, either the port or starboard generator. The AC main switch boards also supports a split-bus configuration that allows both generators to be online simultaneously with the bus-tie opened and the consumers equally supported from either side of the bus-tie.



AC main switch board

6.1.3 Power supply by battery bank via inverters

When the yacht is not connected to shore power and none of the generators are running the power to the AC system is supplied by the service battery banks via the inverters installed in the engine room.

All the power supply of the AC system are going through the Mastervolt Combi inverters. Next to the inverters in the engine room a “manual override panel” has been installed. In case of failure of the Combi inverters, power supply can be ensured by selecting the override function.



*Inverters located
in the engine room at Pt*



*Inverters manual override
located in the engine room at Pt*



Separate information regarding the Mastervolt inverters has been provided with the yacht. Please study this information carefully.



Never work on the electrical installation while the system is energized. Make sure that the shore power, generator and inverter have been switched off.



6.1.4 AC Switch boards

The AC main switch board is located in the engine room. This switch board contains the circuit breakers of the main sources and some consumers in the engine room.

Two distribution switch boards are installed in the fore ship (corridor aft of the mast) and in the aft ship (deck house at navigation desk).

From the fore ship distribution switch board each cabin is provided with their own cabin panel.



AC main switch board located in the engine room



AC distribution board fore ship located in corridor aft of the mast



AC distribution board aft ship located in deck house at navigation desk



The “AC system” drawings are provided with the yacht. These drawings explain the installation.



6.2 Direct current system

6.2.1 DC battery banks

The following battery banks have been installed on board for powering the DC system.

Battery bank	Capacity	Location of batteries
Engine and generator Std starting system:	24V / 225 Ah	Under floor in engine room at port
Generator Pt starting system:	24V / 225 Ah	Under floor in engine room at port
Service system	24V / 1650 Ah	Under floor guest cabins Pt and Std
Emergency system	24V / 200 Ah	Under seat at navigation desk



Power battery bank



Starting battery banks



Emergency battery bank
under seat at navigation desk

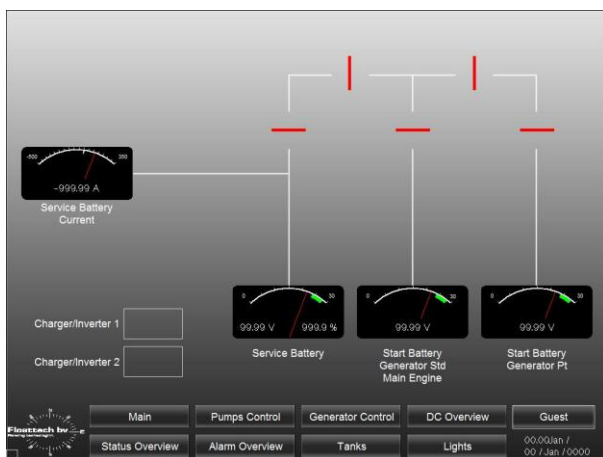


Separate information regarding the batteries has been provided with the yacht. Please study this information carefully.

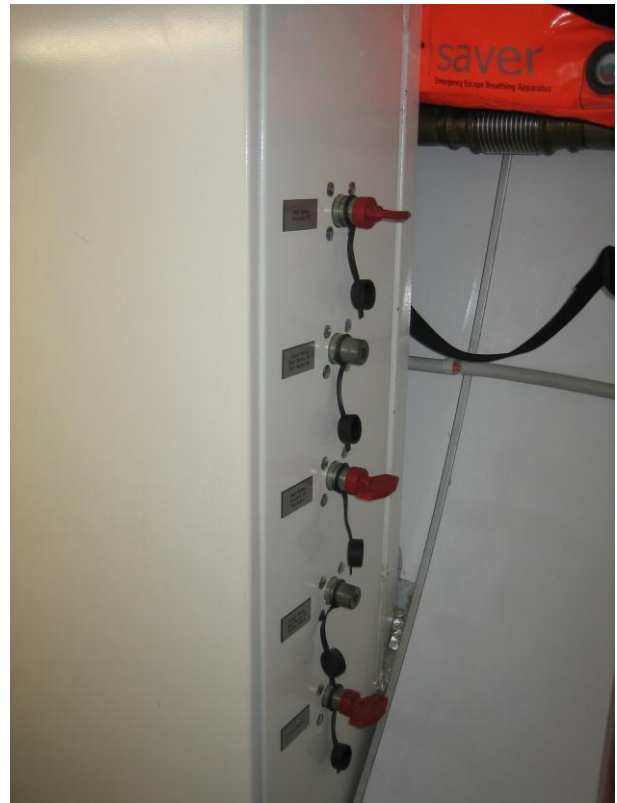
6.2.2 DC main switches

The battery main switches of the service and starting batteries are mounted on the side of the DC main switch board in the engine room.

Battery banks can be coupled with the installed couple switches. In case of a power failure of a battery bank the system can be coupled to one of the other battery banks.



PLC DC page



Battery main switches and coupling switches



6.2.3 DC switch boards

The DC main switch board is located in the engine room. This switch board contains the main switches and fuses of the battery banks and combi-chargers.

The two distribution switch boards are installed in the fore ship (corridor aft of the mast) and in the aft ship (deck house at navigation desk).



DC main switch board located in the engine room



DC distribution board fore ship located in corridor aft of the mast



DC distribution board aft ship located in deck house at navigation desk



6.2.4 Battery chargers

Either shore power or the generators feed the 230 VAC battery chargers. The following battery chargers are installed on board for charging the starting and service battery banks:

- 2 x Mastervolt Combi 24/4000-120
- 1 x Mastervolt Charger 24/100-C

The engine and starboard generator can also be charged by the main engine alternator.



Separate information regarding the Mastervolt Combi and Charger has been provided with the yacht. Please study this information carefully.



Mastervolt Combi's (Inverters and Chargers) installed in the engine room at Pt

6.2.5 Emergency battery set

In case of an electric failure an emergency battery set has been installed below the seat at the navigation desk to power the following equipment:

- GPS (GP37)
- Seacock system engine room
- VHF (FM 2721)
- Satcom C
- Emergency lights
- NMEA Distribution

To switch over from the service batteries to the emergency batteries a main switch has been installed on the DC switch board at the navigation desk.

A Chargemaster 24/12-3 charger charges the emergency battery bank.



DC emergency switch board with emergency main switch at navigation desk



Emergency battery bank and charger below seat at navigation desk



The "DC system" drawings are provided with the yacht. These drawings explain the installation and gives the installed materials.



6.2.6 Safety warnings

Never:

- work on the electrical installation while the system is energized;
- do not modify the yacht's electrical systems or relevant drawings. Installation, alterations and maintenance should be performed by a competent marine electrical technician. Inspect the system at least biennially.
- alter or modify the rated current amperage of overcurrent protective devices;
- install or replace electrical appliances or devices with components exceeding the rated current amperage of the circuit;
- leave the yacht unattended with the electrical system energized, except automatic bilge-pump, fire protection and alarm circuits.

Connect metallic housings or enclosures of installed electrical appliances to the protective conductor system in the yacht (green or green with a yellow stripe conductor).

Use double insulated or grounded (earthed) electrical appliances.



Warning: Do not allow the shore-power cable end to hang in the water. An electrical field can be caused which can cause injury or death to nearby swimmers.



Warning: To minimize shock and fire hazards.

- Turn off yacht's shore-power connection switch before connecting or disconnecting shore-power cable.
- Connect shore-power cable to yacht's inlet before connecting to shore-power source.
- Disconnect shore-power cable at shore-power source first.
- Close shore-power inlet cover tightly.

Do not alter shore-power cable connectors, use only compatible connectors.





6.3 PLC system

6.3.1 General

A PLC (Programmable Logic Controllers) is an industrial computer used to monitor inputs, and depending upon their state make decisions based on its program or logic, to control (turn on/off) its outputs. The PLC system as installed on board the yacht has the following functions:

- Switching main components on/off
- Monitoring of the installation
- Alarm control (see chapter 6.4)

To enter the PLC menu a password (consisting of 5 numbers) to log in is required. Based on the user level you will have access to the all pages and functions or to a limited number of pages and functions. The following user levels are programmed in the system:



Log in menu

User level:

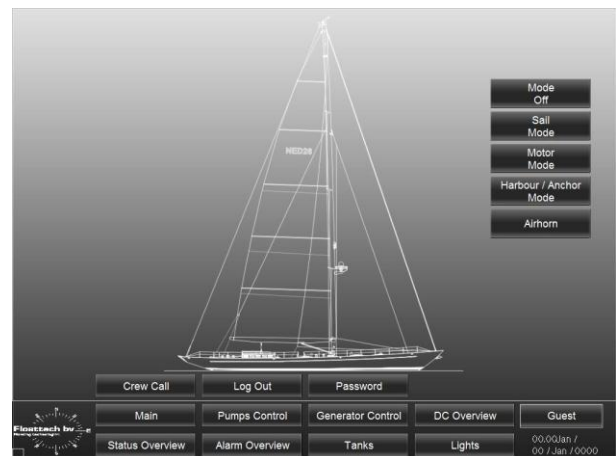
- Super administrator (Floattech)
- Captain
- Crew

Access level

- Access to all pages & adjustment of all functions
- Access to all main pages & adjustments of all main functions
- Access to all main pages & adjustments of all main functions

The PLC screen consist of a main page referring to the following pages:

- Motor mode
- Sail mode
- Harbour / Anchor mode
- Main – Status overview
- Pumps control
- Generator control
- DC Overview
- Status Overview
- Alarm Overview
- Tanks
- Lights



PLC main page

6.3.2 Manual override

Manual override of the PLC system is possible with the TL-switches installed in the main- and distribution switch boards.

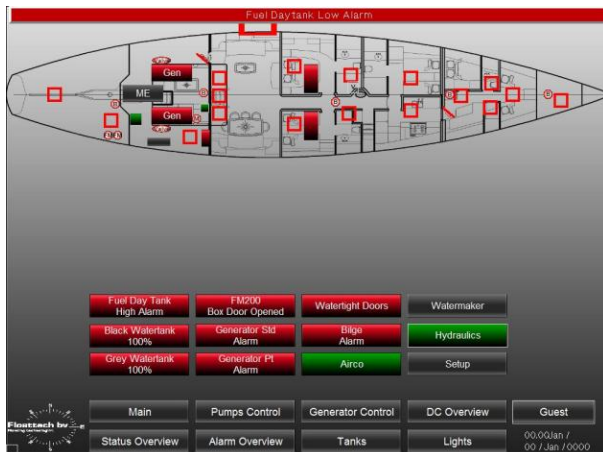


TL-switches in main- and distribution switch boards



6.4 Alarm control system

The alarm monitoring system is integrated in the PLC system. An acoustic signal and a visual indication on the PLC screen will notify against a failure or problem. The acoustic signal can be switched off by pressing the “Acknowledge” button at the PLC screen. To reset the alarm for a period of 10 minutes press the “Silence alarm acknowledge” button at the PLC screen.



*Alarm overview screen
of PLC system*



*Alarm listing screen
of PLC system*

Overview of the alarm functions:

- Fuel Daytank Low Alarm
- Fuel Daytank Low
- Fuel Daytank High
- Fuel Daytank High Alarm
- Fuel Filter Water Alarm
- Greywater Level Alarm 80%
- Greywater Level Alarm 100%
- Blackwater Level Alarm 80%
- Blackwater Level Alarm 100%
- Bilge Alarm Lazarette
- Bilge Alarm E.R.
- Bilge Alarm Mid ship
- Bilge Alarm Fore ship
- Bilge Alarm Saillocker
- FM200 Pressure Alarm
- FM200 Cabinet Door Opened
- Watermaker Alarm
- Powerpack Oil Temp Alarm
- Powerpack Oil Level Alarm
- Airco Alarm
- Alarm Gen Pt
- Overcurrent Gen Pt
- Alarm Gen Std
- Overcurrent Gen Std
- Lamp Alarm Steam Light
- Lamp Alarm Anchor Light Mast
- Lamp Alarm Bow Anchor Light
- Lamp Alarm Stern Light Mast
- Watertank Pt Low Level
- Watertank Std Low Level
- Fuel Pt low Level
- Fuel Std low Level
- Low Battery Alarm
- Open Hatch Fore Peak
- Open Hatch Crew Cabin
- Open Hatch Crew Toilet
- Open Hatch Crew Shower
- Open Crew Mess Hatch
- Open Crew Mess Watertight Door
- Open Hatch Galley
- Open Hatch Guest Pt
- Open Hatch Owners Bathroom
- Open Hatch Guest Bathroom Std
- Open Hatch Owners Cabin
- Open Hatch Guest Cabin Std
- Open Hatch Salon Pt
- Open Hatch Salon Mid
- Open Hatch Salon Std



- Groundfault Testbutton Pushed
- Lamp Alarm Red Boardlight
- Lamp Alarm Green Boardlight
- Lamp Alarm Std NUC Red Light Mast
- Lamp Alarm Pt NUC Red Light Mast
- Lamp Alarm Std Green Light Mast
- Lamp Alarm Pt Green Light Mast
- Lamp Alarm Std Red Light
- Lamp Alarm Pt Red Light
- Open ER Watertight Door
- Open Hatch ER
- Deckhouse Burglar Alarm
- Open Hatch Aft Peak Std
- Open Hatch Aft Peak Aft
- Airvalve ER Pt Closed
- Airvalve ER Std Closed
- Vantilation Batteries Closed



Warning: Do not acknowledge an alarm without visual inspection of the yacht.





7 Navigation & communication

7.1 Navigation equipment

7.1.1 Chart plotter and radar

The yacht is equipped with a full time 3D chart rendering presentation. You can also choose a 2D top-down view of the navigation chart for traditional chart plotting. Radar image of spot-on accuracy can be overlaid with chart information. Not only is it done with the conventional 2D chart format, but also it can now be projected onto 3D chart presentation.

Chart plotter

Brand: Furuno
Model: NavNet3D

Radar

Brand: Furuno
Model: MFDDB



Furuno black box located under Std seat in saloon



NavNet3D chart plotter with radar function

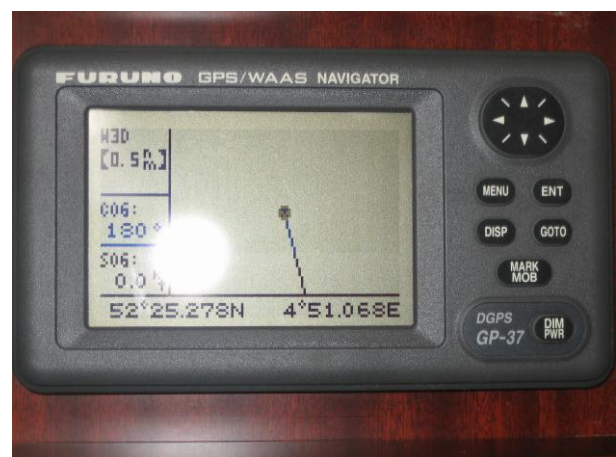


Separate information regarding the Furuno chart plotter and radar has been provided with the yacht. Please study this information carefully.

7.1.2 Global positioning system – GPS

The Global positioning system (GPS) gives the position of the yacht and calculates its speed over ground.

Brand: Furuno
Model: GP-37



Global positioning system (GPS)



Separate information regarding the Furuno GP-37 GPS has been provided with the yacht. Please study this information carefully.



7.1.3 Automatic identification system – A.I.S.

The Automatic Identification System (AIS) is a system designed for identifying and locating vessels. AIS provides a means to electronically exchange ship data including: identification, position, course, and speed, with other nearby ships. The AIS-CTRX is an Automatic Identification System (AIS) Class B transponder with both receiving and transmitting capabilities. Data about your vessel is transmitted every 30 seconds or more, depending on configuration and speed.

Brand: True heading
Model: CTRX



Automatic identification system (AIS)



Separate information regarding the True heading AIS has been provided with the yacht. Please study this information carefully.

7.1.4 Gyro compass

The gyrocompass provides the following data:

- Heading against the geographical meridian at the vessel speed up to 90 knots, latitude up to 80 degrees, roll and pitch angles up to 50 degrees;
- Rate of turn;
- Information about operation mode and failures.

Brand: Alpatron
Model: Minicourse



Alpha minicourse gyro compass panel located under navigation desk



Alpha minicourse gyro compass located under stairs to deckhouse



Separate information regarding the Alpatron Minicourse gyro compass has been provided with the yacht. Please study this information carefully.



7.1.5 Compass

At the steering console a compass has been fitted.

Brand: Ritchie
Model: FD600 globemaster



Compass at steering console



Separate information regarding the Ritchie compass has been provided with the yacht. Please study this information carefully.





7.2 Sailing instruments

The B&G sailing instruments give data about the wind speed, wind direction, apparent boat speed and depth. All data can be seen on the B&G H3000 screens as fitted at the navigation desk, in the crew area and in the cockpit. Analogue displays with data about the Rudder angle; Magnified apparent wind angle; Apparent wind angle & Apparent wind speed are also fitted in the cockpit.

Brand: B&G
Model: Hydra 3000



B&G panels mounted on deckhouse



B&G Black box



B&G panel mounted at navigation desk



Separate information regarding the B&G Sailing instruments has been provided with the yacht. Please study this information carefully.



7.3 Communication equipment

7.3.1 Emergency radio procedures

Name of vessel: SY Annagine
Call sign: 9HB2038
MMSI number: 248707000

EMERGENCY RADIO PROCEDURES (only for GMDSS/DSC radios with DISTRESS button)

- Check main battery switch is on, switch radio on, turn up volume
 - Adjust “squelch” control so noise just disappears
 - Press DISTRESS button once, select distress designation (if time)
 - Press DISTRESS button again AND HOLD for 5 seconds until acoustic alarm stops
 - Wait approximately 15 seconds – press transmit button on microphone and say slowly and clearly:
-
- **MAYDAY, MAYDAY, MAYDAY**
 - **THIS IS SY ANNAGINE, SY ANNAGINE, SY ANNAGINE**
 - **MAYDAY SY ANNAGINE,**
 - **MY POSITION IS** (latitude and longitude, or true bearing FROM a known point)
-
- **I AM** (sinking, on fire, etc.)
 - **I REQUIRE IMMEDIATE ASSISTANCE**
 - **I HAVE** (number of persons on board and any other relevant information (e.g. availability of liferaft)
 - **OVER** (this means “reply to me”)
 - **RELEASE THE TRANSMIT BUTTON**
 - **KEEP LISTENING ON CHANNEL 16 FOR INSTRUCTIONS**



If you don't know your position, don't guess – give your last known position



7.3.2 VHF radio – crew cabin

The SAILOR RT5022 can store and replay incoming calls. The display and menus have been separated into two with the main VHF functions shown in a 7-segment display and the DSC functions and settings shown in a graphic LCD display. The 7-segment display is clearly readable at a distance and from even very wide angles. Both displays have text and indicators lit in red, which does not disturb the night vision.

Brand: Sailor
Model: RT5022



Sailor RT5022 VHF radio in crew cabin



Separate information regarding the Sailor VHF Radio has been provided with the yacht. Please study this information carefully.

7.3.3 VHF radio – navigation desk and cockpit

The Simrad RS87 is a modular VHF radio and Class D DSC (Digital Selective Calling) radiotelephone systems using a fully featured telephone-style handset (RS87). The unit supports the latest GMDSS requirements for non-SOLAS vessels from the International Maritime Organization (IMO) and will enable you to make digitally selected calls that are quicker and simpler to make than traditional voice calls using channel 16.

Brand: Simrad (FURUNO)
Model: RS87



*SIMRAD RS87 VHF
located at the navigation desk*



*SIMRAD RS87 VHF
located in the cockpit*



Separate information regarding the Simrad (Furuno) VHF Radio has been provided with the yacht. Please study this information carefully.



7.3.4 Sailor FleetBroadband

The Sailor FleetBroadband satellite communication system provides the yacht with telephone, fax, e-mail and Internet access.

Brand: Thrane and Thrane
Model: Sailor FleetBroadband 500



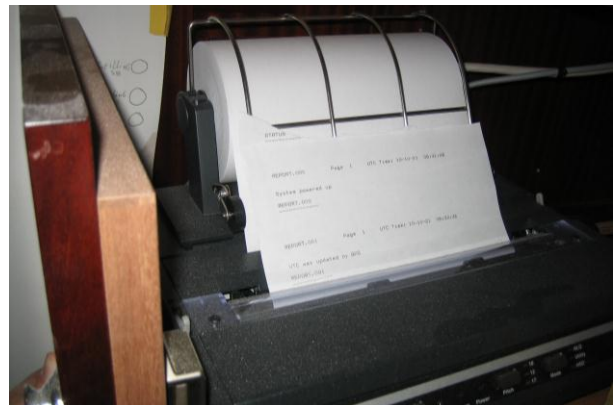
Separate information regarding the Sailor FleetBroadband has been provided with the yacht. Please study this information carefully.



Sailor FleetBroadband box



*Satellite phone
located at the navigation desk*



*Printer (fax) located in locker at
starboard side of the saloon*

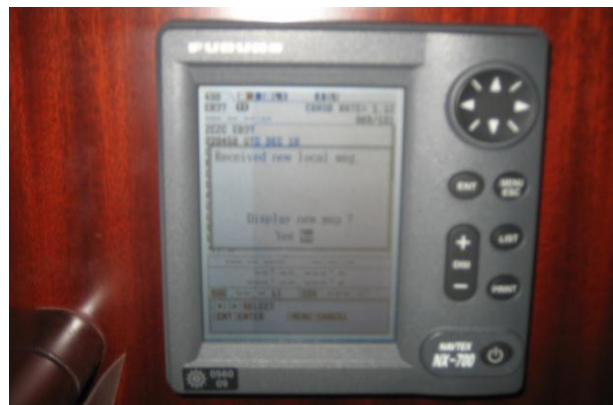
7.3.5 Navtex

The Furuno NX-700B NavTex (Navigational Telex) is an international automated medium frequency direct-printing service for delivery of navigational and meteorological warnings and forecasts, as well as urgent marine safety information to ships.

Brand: Furuno
Model: NX-700B



Furuno NX-700B Navtex box



Furuno NX-700B Navtex



Separate information regarding the Furuno Navtex has been provided with the yacht. Please study this information carefully.



8 Safety equipment and recommendations

8.1 Fire fighting system

8.1.1 Fire and smoke detection

In each cabin and other spaces on board alarm switches and smoke detectors are mounted. The galley and engine room are provided with heat detectors.

The fire fighting alarm panel can be found in the salon at starboard. At the panel two stop-buttons are mounted for the interior and for the engine room.

When pressing the 'Interior stop' all the ventilation on board (e.g. galley ventilation and fancoils) will be switched off and the emergency lightening will be switched on.

By pressing the "Engine room stop" the ventilation blowers and the fuel supply pumps will be switched off. The fire dampers will be closed and the emergency lights in the engine room will be switched on.



Fire fighting detection control panel



Switch for general/fire alarm



Smoke detector



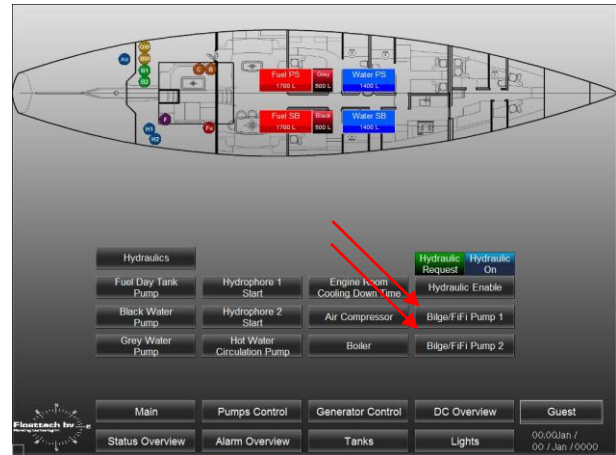
Separate information regarding the Fire fighting alarm panel has been provided with the yacht. Please study this information carefully.



8.1.2 Main system

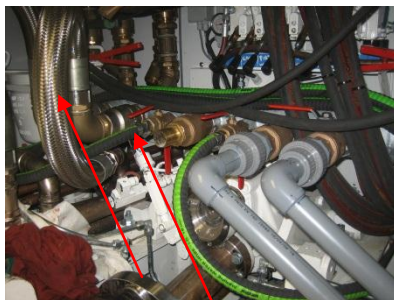
Installed on board are two pumps which can be used for the bilge pumping system or for the fire fighting system. The port side pump is normally used for the fire fighting system. The starboard pump is for the bilge system. The fire fighting (or bilge) pumps can be switched on/off at the PLC screen.

The valve of the suction line of the applicable fire fighting (or bilge) pump has to be opened at the central sea water inlet manifold before the pump is switched on.



Fire fighting pump control at PLC panel

With the fire fighting pump selection manifold located behind the two pumps the used pump has to be selected. As the port pump is used for the fire fighting system the portside valve of this manifold is normally kept open.



Std FiFi and Pt FiFi pump at central seawater inlet manifold



FiFi (or bilge) pump located in aft side of engine room at Pt



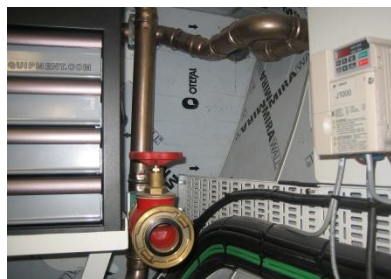
Std and Pt (normally open) FiFi pump selection manifold

Fire fighting hose connections can be found at the following locations:

- In the lazarette (with 15 meter fire fighting hose)
- In the engine room (aft at Pt)
- In the forepeak (with 15 meter fire fighting hose)



FiFi hose connection lazarette



FiFi hose connection in engine room



FiFi hose connection forepeak



Warning: Do not let the bilge pump run dry longer than 5 minutes.



8.1.3 Backup system

A portable diesel powered pump is located in the lazarette. In case of an emergency where the main fire fighting system fails this portable pump can be used as backup system.

Diesel engine driven pump:

Brand: Wavo pompen
 Engine: Hatz 1B20
 Model: AP 220 1B20
 Capacity: 30 m³/hr
 Weight: 46 kg
 Serial nr.: 17111001 100321 099 536



Portable diesel engine driven pump installed in the lazarette



Warning: Do not let the portable pump run dry or with a closed fifi nozzle.



The "Bilge-FiFi diagram" can be found in the annexes of this manual.

8.1.4 Engine room fire fighting system

A FM 200 fire fighting system has been installed for the engine room. The FM 200 extinguishing cylinder is located in the lazarette and discharge the extinguishing medium into the engine room.

The control head of the cylinder is for local operation and is mounted directly onto the FM200 cylinder. The control head is fitted with a lever that is locked with a sealed locking pin. When activating the control head manually, remove the locking pin before activating the FM200 extinguishing system.

When the engine room fire fighting system is activated the blower in the lazarette will be automatically switched on. The ventilation outlet is in the port swallow nest.



FM 200 cylinder with local operation lever located in the lazarette at Std



Lazarette ventilation



Separate information regarding the FM 200 fire fighting system has been provided with the yacht. Please study this information carefully.



8.1.5 Portable fire extinguishers

Each cabin and the engine room are provided with portable fire extinguishers. Spare portable fire extinguishers are stored in the lazarette.



Portable fire extinguishers



*Spare portable fire extinguishers
In the lazarette*

For using the portable fire extinguisher, remember The “PASS”-word:

Keep your back to an unobstructed exit and stand about 2 metres away from the fire. Follow the four-step PASS procedure:

- | | |
|--|---|
| Pull the pin: | This unlocks the operating lever and allows you to discharge the extinguisher. Some extinguishers may have other level-release mechanisms. |
| Aim low: | Point the extinguisher nozzle (or hose) at the base of the fire. |
| Squeeze the lever about the handle: | This discharges the extinguishing agent. Releasing the lever will stop the discharge. |
| Sweep from side to side: | Moving carefully toward the fire, keep the extinguisher aimed at the base of the fire and sweep back and forth until the flames appear to be out. Watch the fire area. If the fire reignites, repeat the process. |

You should also know that portable fire extinguishers are valuable for immediate use on small fires. They contain a limited amount of extinguishing material and need to be used properly so that the extinguishing material is not wasted.



8.1.6 Fire suit

In the lazarette a fire suit and fireguard equipment (fire hammer and fire rope) is stored.



Fire suit and fireguard equipment stored in the lazarette

8.1.7 Escape way's in the event of a fire

In case of an emergency there are two main escape way's the leave the yacht:

- Companionway
- Forepeak hatch (crew cabin)



Forepeak hatch (crew cabin)



Forepeak hatch is opened from the outside by using a winch handle. Make sure that there is a winch handle in the vicinity of the hatch (storage location at the mast).



8.1.8 Fire fighting safety warnings

Servicing of fire-fighting equipment



The boat owner/operator shall:

- have fire-fighting equipment checked at the intervals indicated on the equipment,
- replace portable fire extinguishers, if expired or discharged, by devices of identical fire-fighting capacity, and
- have fixed systems refilled or replaced when expired or discharged.

Responsibility of boat owner/operator



It is the responsibility of the boat owner/operator:

- a) to ensure that fire-fighting equipment is readily accessible when the boat is occupied, and
- b) to inform members of the crew about
 - the location and operation of fire-fighting equipment,
 - the location of routes and exits.

General



- Keep the bilges clean and check for fuel and gas vapours or fuel leaks frequently.
- When replacing parts of the fire-fighting installation, only matching components shall be used, bearing the same designation or having equivalent technical and fire-resistant capabilities.
- Do not stow combustible material in the engine space. If non-combustible materials are stowed in the engine space, they shall be secured against falling into machinery and shall cause no obstruction to access into or from the space.

Specific warnings



Never:

- obstruct passageways to exits and hatches,
- obstruct safety controls, e.g. fuel valves, switches of the electrical system,
- obstruct portable fire extinguishers stowed in lockers,
- leave the yacht unattended when cooking and/or heating appliances are in use,
- modify any of the yacht's systems (especially electrical and fuel) or allow unqualified personnel to modify any of the yacht's systems,
- fill any fuel tank when machinery is running, or when cooking or heating appliances are in use,
- smoke while handling fuel or gas.

Engine room



- Shut down the engine and blower, before discharging the automatic fire extinguisher of the engine room.



8.2 Inmarsat-C Distress Alarm Box

The Distress Alarm Box is based upon the Inmarsat-C service. See chapter 7.3.1 Emergency radio procedures when to use the Distress alarm box.

Brand: Thrane and Thrane
Model: Sailor TT-3042C



Inmarsat-C Distress Alarm Box located below navigation desk



Separate information regarding the Sailor Inmarsat-C Distress Alarm system has been provided with the yacht. Please study this information carefully.

8.3 Search and rescue transponder – S.A.R.T.

The rescuer 2 sart is a 9ghz x-band radar transponder and has been designed for assisting air/sea ship or survival craft rescue operations in accordance with imo, solas requirements. Once activated, when a radar signal is received from a ship or aircraft, the unit automatically transmits a response signal, which indicates the survival craft on the radar screen by means of a stream of 12 in-line dots. When in use the rescuer 2 will remain in standby mode for 96 hours and automatically start transmitting in response to a radar transmission being received.



S.A.R.T. stored under forward deck salon seat

Brand: Kannad Marine
Model: Rescuer 2 SART



Separate information regarding the Kannad Marine SART has been provided with the yacht. Please study this information carefully.



8.4 Epirb

Distress radio beacons, are tracking transmitters which aid in the detection and location of boats in distress. Strictly, they are radiobeacons that interface with Cospas-Sarsat, the international satellite system for search and rescue (SAR). Using the initial position provided via the satellite system, the distress signals from the beacons can be homed by SAR aircraft and ground search parties who can in turn come to the aid of the concerned boat.

Brand: Kannad Marine
Model: Epirb Safe



Epirb stored under forward deck salon seat



Epirb Kannad Safelink



Separate information regarding the Kannad Marine Epirb has been provided with the yacht. Please study this information carefully.

8.5 Liferafts

Liferafts (Zodiac, 10 persons) are situated on the aft deck. The hatches above the liferafts are provided with release mechanism. In case the yacht is sinking the hatches will be released automatically.

Brand: Zodiac
Model: ZMEC10 TO XTREM
Serial numbers: 7EV81C909 / 4EV84C909



Liferaft located on the aft deck



Hatch release mechanism



Servicing of liferaft: The yacht owner/operator shall have the liferafts checked at intervals indicated on the box.



Separate information regarding the Zodiac liferaft has been provided with the yacht. Please study this information carefully.



8.6 Inflatable dinghy storage

The inflatable dinghy can be stowed on deck aft of the mast. The dinghy can be launched by using one of the halyards.



Never store petrol in the engine room or other spaces inside the yacht. The only place where fuel can be kept is inside the tender and it should be securely tied down so that spillages are avoided.



Inflatable dinghy stowed on deck

8.7 Risk of flooding and stability

Stability recommendations:

- All crew members need to be adequately trained.
- Any change in the disposition of the masses aboard (for example the addition of a radar, a stowing mast, change of engine, etc.) may significantly affect the stability, trim and performance of the yacht;
- Bilge water should be kept to a minimum;
- Stability is reduced by any weight added high up;
- In rough weather, hatches, lockers and doorways should be closed to minimize the risk of flooding;
- Stability may be reduced when towing or lifting heavy weights using a davit or boom;
- Breaking waves are a serious stability hazard.



Before leaving the harbour please make sure that all the skylights and hatches are closed and secured.



Please read the chapter "Bilge pumping system" to make yourself familiar with the bilge pumps installed on board.

8.8 Cockpit drainage

Drains have been fitted in the cockpit floors and the side decks to prevent cumulating of water.



The drains should not be blocked by any debris or equipment placed over the top of them.

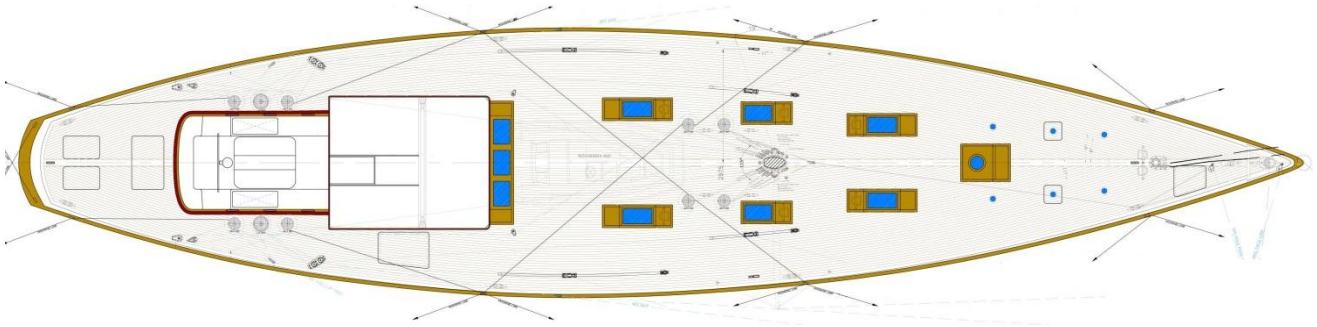


Cockpit drains



8.9 Mooring and Towing

When mooring run the lines through the fairleads and use the available cleats. There are four cleats located on each side of the yacht.



When being towed a bridle should be constructed using the two forward cleats and the windlass (to spread the load) as strong points. When towing then the cockpit winches should be used as strong points.

- The owner/operator is responsible for using adequate mooring lines, towing lines and anchor chain and lines.
- The breaking strength of the lines used shall not be more than 80% of the breaking strength of the associated strong point.
- The crew needs to familiarize themselves with attaching the towing line to the bow tie down point.
- Towing and being towed is done at low speeds e.g. 5 knots.
- When attaching the towline prevent using knots that can't be undone under load.



Cleats on deck

8.10 Man overboard prevention

For your safety a guard rail is fitted around the deck. On both sides of the deck there are openings in the guard rails for the passage of persons. Because no guard rails are fitted at the foredeck, this part of deck is only permitted for the crew with lifelines attached.

8.11 Jon buoys

There are two Jon Buoys fitted at the transom of the yacht. These are activated by pulling the release lever through 90 degrees which causes the unit to fall outboard into the water where it fully deploys. The units are fitted with lights and a strong point for lifting the MOB on board the vessel.



It is recommended that the Jon Buoy is serviced every year by an approved Jon Buoy service centre.



8.12 Field of vision from the helm position

The Operator's vision from the helm can be obstructed by high trim angles of the yacht and other factors caused by one or more of the following variable conditions:

- Loading and load distribution.
- Speed.
- Sea conditions.
- Rain and spray.
- Interior lights.
- Persons or movable gear in the operator's field of vision.

Please make sure that the helmsman has got all round visibility at all times.

The international Regulations for Preventing Collisions at Sea (COLREG) and the rules of the road require that a proper lookout be maintained at all times and observance of right of way. Make certain no other vessels are in the path of your yacht before proceeding.

8.13 First aid kit

The yacht is equipped with a first aid kit and medical equipment. The first aid kit is stored in the deckhouse.

Responsibility of boat owner/operator



It is the responsibility of the boat owner/operator:

- to inform members of the crew about the location of the first aid kits,
- to replace first aid items, if expired or used.



First aid kit



9 Environmental considerations



Be aware of local environment laws and respect codes of good practice.

9.1 Fuel and oil spillage

In all cases avoid spilling fuel and oil in the open water.

When refuelling, watch the level meter, slow down when reaching the end and make sure you have absorbing materials, like cloth, nearby. Plug of the water drain to prevent accidentally spillage of diesel.

When you need to refresh the engine oil, collect it and deliver it to the designated place. In most harbours these places are available.

Oil spilled in the bilge must not be pumped over board. Clean the bilge with cloth and deliver also these to the designated place in the harbour. Finish cleaning the bilge with decomposable soap. In general keep the bilges as clean as possible.

9.2 Discharge and disposal of waste

Do not discharge the holding tank close to shore or in any prohibited zone and use harbour or marina pump-out facilities to empty the holding tank before leaving the harbour.

Every substance you waste in the yacht, will be pumped over board by the bilge pumping system. Therefore, turn off the pumps and clean the bilge by yourself and deliver waste to the designated place in the harbour.

Be aware of international regulations against marine pollution (Marpol) and respect it as much as possible.

Turn off taps and showers when not needed. Ask crew if in doubt.

9.3 Excessive noise and exhaust emissions

Although the engine and generators are sufficiently isolated and the emission satisfies the criterions, you must reckon with the possibility you are disturbing others (especially at anchor).

Consequently, when you feel you have to slow down, please do so. And beside these facts, just remember to respect the local speed limit.

9.4 Wake and wash

Drive at low speed to reduce the wave heights at places where you can disturb other boats, or even damage the bank.

9.5 Paint, cleaning agents and other substances

It is important to know what substances you are dealing with. Many can harm to the environment.

Don't waste paint, dust from sanding and thinner. Collect it and deliver it to a designated place.

For cleaning your ship, it is recommended to use decomposable soaps, as these will not affect the environment.

In the case of damage to the fridge, make sure the system is not leaking. If so, immediately consult a professional. Also materials like engine cooling fluid will harm the environment, so they must be treated with care and also delivered to the designated place.



10 Maintenance

10.1 General care

Regular maintenance keeps your vessel in good condition. Maintenance should be performed by qualified personnel.

10.2 Cleaning

Periodic cleaning is the best way to keep your yacht looking like new. Regular washing and waxing keep dirt and build-up from deteriorating the finish. Thoroughly clean the hull, deck and interior of the yacht from time to time.

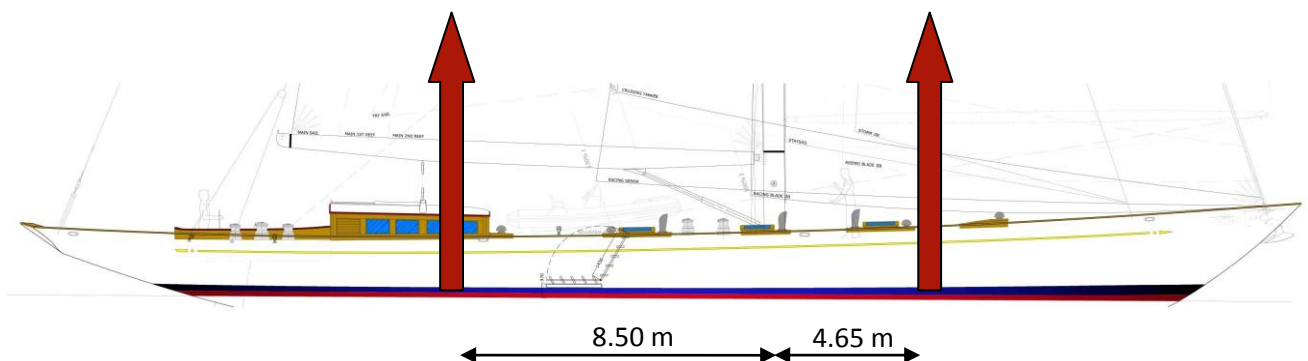
When washing the yacht, be sure to use a mild detergent and warm water solution. **DO NOT** use abrasive cleaners, solvents, ammonia or chlorine, as these will damage the paint coated surface. Under extreme conditions, special cleaners may be used to remove marine growth from the hull.

For the maintenance of the teak deck, it is important to wet and rinse the deck regularly with fresh water in order to prevent drying out. In warm climates this procedure should be carried out on a daily basis. The occasional mild detergent (natural liquid soap) diluted in water should be kept to a minimum. Bleach and aggressive chemical cleaners should not be used.

Whenever the weather makes it possible, air and ventilate regularly your yacht. Make sure that the bilges are clean and dry.

10.3 Lifting of the yacht

An overhead hoist with a minimum 125 ton capacity must be used. Use a wide-enough spreader bar on each sling to prevent damaging side pressure to the deck or gunwale moulding. Lifting slings must never contact shafts, struts or hardware protruding from the hull as this may result in damages. Lifting slings must be in line with the bulkheads.



When the yacht is out of the water, it is important to support the hull correctly to avoid any hull damage.

If a storage cradle is used, the hull must be properly supported to prevent load damage. Protect all items extending from the hull (i.e., the rudder, propeller, etc.) to prevent them from resting on the cradle or the ground. Do not apply any load stress to the propeller, shaft, rudder, water intake grate or other protruding items.



The “Docking plan” drawings can be found in the annexes of this manual.



10.4 Winter storage

The storage or winter lay-up requires special preparation to prevent damage to the yacht. Since winter storage is an annual event, it presents an excellent opportunity to perform the annual maintenance at this time, depending upon the amount of usage.

Without proper preparation, storage for long periods of time may cause internal parts of the engine and transmission to rust due to lack of lubrication. Also, if the yacht has been stored in below-freezing temperatures with water inside the bilge, engine cooling system, fresh water system, grey and black water system, this condition may result in major damage from freezing.

All the systems containing water should be emptied during storage at freezing temperatures.

Refer to the engine and generator operation manuals regarding oil changes. The yacht should have an oil change performed immediately prior to storage to prevent potential damage to the engine.

Because of the complexity of preparing a yacht for proper winter storage, as well as the possibility of extreme damage to the yacht if a preparation error was made during winterization, it is highly recommended to schedule an appointment with an authorized service department to permit a technician to perform all winterization procedures.

10.5 Painting

The ships aluminium hull was faired before a primer was applied followed by an Awlgrib finish above the waterline and an International antifouling below the waterline.

In the schedule below the painting systems are summarized.

	Primer	Finishing
Hull below waterline:	Interprimer 820 Interfil 830 Epoxy finishing filler 3 x interprimer 820	2 x Antifouling: Holland International "aqua green"
Hull above waterline:	Interprimer 820 Interfil 830 Epoxy finishing filler Interprimer 820 2 x primer 545	Awlgrib, oyster white (H8139)
Hull waterline:	See hull above waterline	Awlgrib, flag blue (G5002)
Name and cove stripe:	See hull above waterline	Awlgrib, pale gold (H9182)
Interior varnish:	N.A.	1 st layer 100% reduced International Clear Wood Sealer (fast dry) 2 nd layer 60% 3 th layer 40% 4 th layer 30% 5 th to 10 th Boero Altura UV 5 to 10% reduced

The fresh water tanks should be inspected approximately every 3 years for damage to the tank coating and this should be reapplied as necessary.

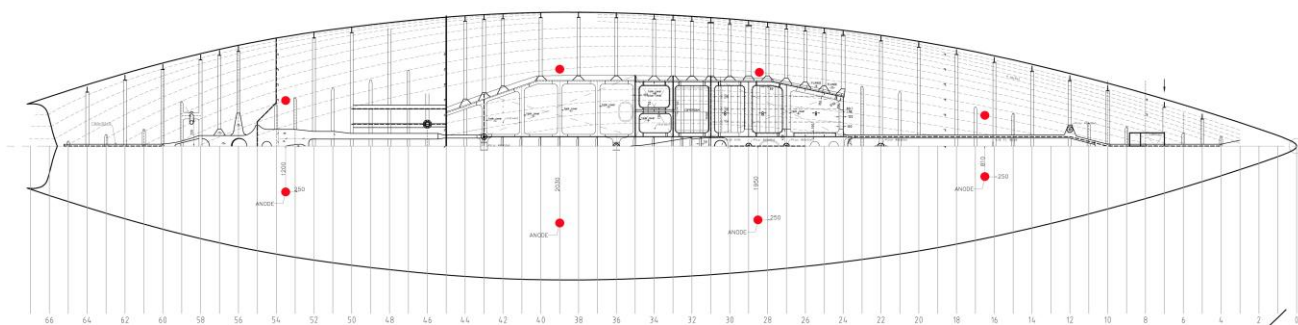


Don't waste paint, dust from sanding and thinner, not even in the sink. Collect it and deliver it to the designated place in the harbour.



10.6 Anodic protection

There are 8 zinc anodes fitted to the underwater area of the hull. The anodes must not be painted or anti-fouled as this will prevent them from protecting the units and the hull.



Underwater area of hull	:	8
On the keel	:	2
On the propeller shaft	:	1 (round diameter 60mm)
Inside engine	:	1
Inside generator	:	2x .21-12010 (per generator)



The anodes have to be checked annually and if necessary replaced by new ones.



The “Zinc anode arrangement” drawings can be found in the annexes of this manual.

11 Disclaimer

The description and specifications contained in this operation manual were in effect at the time this manual was approved for printing. Even though care has been taken in the preparation of the contents of this operation manual, Wijma Marine Consultants does not assume legal or other liability for any inaccuracy, mistake, misstatement or any other error of whatsoever nature contained herein. Wijma Marine Consultants formally disclaims liability in respect of such aforesaid matters. The information contained within this operation manual is of a condensed and general information nature only. All information is based on data as provided by Jacht Ontwikkelings Maatschappij Holland BV or by one of their subcontractors.

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12 Annex A: Joining manuals

The following manuals are provided with the yacht and referred to in this manual:

3 Hull construction

- Roxtec – Cable and Pipe Transits Brochure

4.3 Sail and rigging plan

- Offshore Spars Drawings

5.2 Engine room ventilation

- ActionAir spring return actuator Manual / data sheet
- Marine fire damper A-60 Manual
- Ventilator Witt&Sohn Drawing
- Ventilator Witt&Sohn Manual

5.3 Main engine

- Volvo Penta D7A-B TA Manual 1
- Volvo Penta D7A-B TA Manual 2
- Volvo Penta D7A-B TA Data sheet

5.4 Propulsion system

- Amartech – AWM Controllable Pitch Propeller System Manual
- Amartech – Balluw Micropulse Transducers Manual
- Amartech – Omron Proximity Sensor Manual
- Amartech – Eaton S Series Manual
- Amartech – Bosch directional valve Manual
- Amartech – Wiring diagram control system Drawing
- Amartech – EasyStern ClampSeals Manual
- Amartech – AxiSeal Manual
- Amartech – Stan-by seal Manual

5.5 Generator

- Northern Lights 944W Data sheet
- Northern Lights 944W Drawing
- Northern Lights 944W Manual
- Northern Lights 944W Part catalogue
- Northern Lights Sound Shield Manual

5.6 Fuel system

- Fuel pump SIHI AOHA Data sheet
- Fuel pump SIHI AOHA Manual

5.6.4 Fuel filters

- Separ backflush instructions Manual
- Separ replace element instructions Manual
- Separ SWK 2000 Manual
- Separ SWK 2000 Data sheet

5.8 Exhaust system

- Halyard lift silencer Manual
- Halyard water separator Manual



5.9.2 Hot water circulating system

- Flamco boiler Brochure
- UPS pumps Manual

5.9.3 Water maker

- Lowara pump Data sheet
- Schenker 210 pump Drawing
- Schenker 210 pump Drawing
- Water maker 210 litre Manual
- Water maker winter maintenance – Dutch Manual

5.11 Toilet system (black water)

- Tecma toilets Manual
- Tecma toilets interface Manual

5.12 Bilge pumping system

- Bilge_Fifi pump Sihi VW12-20 Data sheet
- Bilge_Fifi pump Sihi VW12-20 Manual

5.15 Interior ventilation system

- Hatch Solimar Brochure
- OceanAir Skyscreen concealed Data sheet
- OceanAir Skyscreen concealed Drawing
- OceanAir Skyscreen concealed Manual 1
- OceanAir Skyscreen concealed Manual 2

5.16 Galley equipment

- Cook plate Gaggenau – Instruction Manual
- Cook plate Gaggenau – Operating Manual
- Dishwasher Miele G7856 Manual
- Extractor hood Gaggenau – Operating Manual
- Micro wave Gaggenau – Operating (Dutch) Manual
- Micro wave Gaggenau – Operating Manual
- Oven Gaggenau - Installation Manual
- Oven Gaggenau -Operating Manual

5.17 Air conditioning – cooling & heating

- 3 way actuated valve Manual
- Airco maintenance Manual
- Airco system fill up instructions Manual
- Airco system Technical specification
- AT Air handlers Manual
- Chilled water arrangement Drawing
- Chilled water control Manual
- Chilled water diagram Drawing
- Electric box layout Drawing
- Expansion vessel Flamco Manual
- Frequency controller FC1100-PC Manual
- Frequency controller FC500-PC Manual
- Frequency converters Vacon Manual



- Heater 10 kW
- Heinen & Hopman
- Safety valve Flamco
- Seawater pumps 700-710

Drawing
Brochure
Brochure
Manual

5.18 Refrigerators and freezers

- 3 way actuated valve
- Compressor Bock
- Cool and Freeze Rev7 – Heinen en Hopman
- Coolers EVS
- Cooling plant electrical diagrams
- Electric actuators 03SQS-65
- Expansion vessel Flamco
- Freon diagram
- Heat exchanger CB14
- Layout cooling plant RevB
- Safety valve Flamco
- Thermo meter
- UPS pump

Manual
Brochure
Drawing
Brochure
Drawings
Brochure
Manual
Drawing
Manual
Drawing
Brochure
Brochure
Manual

5.19 Steering system

- Auto pilot B&G H3000

Manual

5.20 Hydraulic system

- Double rod cylinder Lewmar
- Hydraulic circuit
- Hydraulic reservoir
- Hydraulic system
- Hydraulic winch Lewmar
- Windlass Lewmar V8

Drawing
Drawing
Drawing
Specification
Manual
Manual

5.21 Bow thruster

- Lewmar 400T
- Lewmar 400TAH

Manual
Drawing

5.22 Anchoring arrangement

- Fortress anchor
- Manson Plough anchor
- Manson Plough anchor
- Windlass Lewmar 5000

Data sheet
Drawings
Certificate
Manual

5.23 Deck winches

- Hydraulic winch Lewmar

Manual

6 Electrical system

- Batteries Mastervolt Gel 2V
- Batteries Odyssey PC1800-FT
- Batteries Odyssey PC2250
- Charger Mastervolt 24_100-C
- Combi Mastervolt 24_4000-120
- Exendis isolation transformer

Manual
Data sheet
Data sheet
Manual
Manual
Brochure



• Omron J1000	Manual
• Omron V1000	Manual
7.1.1 Chart plotter and radar	
• Radar antenna Furuno installation	Manual
• Radar black box Furuno installation	Manual
• Radar black box Furuno operation	Manual
7.1.2 Global positioning system – GPS	
• Ante3nna IDBISCAY	Manual
• GPS Furuno GP-32 / GP-37	Manual
• GPS Garmin 17x	Manual
7.1.3 Automatic identification system – A.I.S.	
• True heading CTRX Class B Transponder	Manual
7.1.4 Gyro compass	
• Alpha mini course	Manual
7.1.5 Compass	
• Ritchie FD600 globemaster	Brochure
• Ritchie FD600 globemaster	Manual
7.2 Sailing instruments	
• Auto pilot B&G H3000	Manual
• B&G H3000	Manual
• B&G H3000 remote vision	Manual
7.3.2 VHF radio – crew cabin	
• VHF Sailor RT5022	Brochure
• VHF Sailor RT5022	Manual
7.3.3 VHF radio – navigation desk and cockpit	
• VHF Furuno FM-2721 operation	Manual
7.3.4 Sailor fleet broadband	
• Sailor fleet broadband IP handset	Manual
• Sailor fleet broadband installation	Manual
• Sailor fleet broadband operation	Manual
• Sailor fleet broadband Quick guide	Manual
7.3.5 Navtex	
• Nav data Sievers SB1438-A	Manual
• Navtex Furuno NX-700 operation	Manual
8 Safety equipment	
• Drager saver breathing apparatus Brochure	Brochure
• Epirb Kannad Manual	Manual
• JonBuoy Manual	Manual
• Life jackets Kru XS and JR	Data sheet
• Life jackets Kru Professional	Data sheet
• Life jackets Offshore 275n	Data sheet
• Lifebuoys	Data sheet



• SART Kannad Rescuer2	Manual
8.1.1 Fire and smoke detection	
• Fire alarm system AFMS 3000	Manual
8.1.2 Fire fighting main system	
• Bilge_Fifi pump Sihi VW12-20	Data sheet
• Bilge_Fifi pump Sihi VW12-20	Manual
8.1.4 Engine room fire fighting system	
• ER FiFi FM200-GX20	Manual
• ER FiFi Ajax P&ID	Drawing
8.2 Inmarsat-C Distress Alarm Box	
• Satcom-C TT-3000E	Manual
8.5 Liferafts	
• Zodiac XTREM 10 man	Data sheet
• Quick release Hammer HAM1000	Certificate
Audio and Video	
• Bose Environmental Speakers	Manual
• Bose Lifestyle 38-48 DVD installation	Manual
• Bose Lifestyle 38-48 DVD system operation	Manual
• Bose Lifestyle SA-2 stereo amplifier	Manual
• Remote Control Personal Music Center	Manual
Computer network and internet	
• Amplicon Impact E-42	Manual
• Engenius Senao ECB-3220	Manual
• Hatteland Display Series2	Manual
• Linksys WRT120N	Manual
• Option Globesurfer III	Manual
• Probridge M15	Manual



13 Annex B: Drawing list

The following drawings are provided with the yacht and referred to in this manual:

13.1 Design drawings

<i>Drawing title</i>	<i>DWG nr.</i>	<i>Rev.</i>	<i>Sheet</i>	<i>Date</i>
Key dimension plan	13-10	F	1/1	11-06-2007
Draft mark definition	13-20	B	1/1	14-10-2010
Loadline dimensions	13-30	O	1/1	17-04-2010
Docking plan	19-10	A	1/1	10-09-2006
Zinc anode arrangement	29-64	O	1/1	06-02-2008
CNS typical & design details	23-12	F	1/1	28-09-2007
Shell plating arrangement	25-00	B	1/1	10-09-2006
General construction – Decks	25-10	F	1/1	03-10-2007
General construction – Longitudinal	25-11	F	1/1	03-10-2007
General construction – Sections	25-31	F	1/2	03-10-2007
General construction – Sections	25-32	F	2/2	03-10-2007
Side boarding platform	25-40	A	1/1	10-01-2007
Keel construction	26-10	E	1/1	03-10-2007
Tankage Plan	28-10		1/1	
Chainplates	29-10	B	1/1	03-10-2007
Linesplan	24-10	C	1/1	22-08-2006
Rudder arrangement	31-10	C	1/1	22-09-2008
Steering system	31-20	E	1/1	15-05-2009
Propeller Strut	31-30	A	1/1	03-10-2007
General arrangement	50-10	D	1/1	01-08-2007
Deckplan	60-10	D	1/1	20-12-2007
Liferaft lockers	64-10	C	1/1	24-06-2010
Anchor systems	65-10	A	1/1	10-09-2006
Sailplan	70-10	E	1/1	21-12-2007
Navigation lights arrangement	70-20	B	1/1	25-03-2010
Safety & Fire plan	84/10	D	1/1	15-09-2010

13.2 System drawings

<i>Drawing title</i>	<i>DWG nr.</i>	<i>Rev.</i>	<i>Sheet</i>	<i>Date</i>
General system GA	418-100-000	A	1/-	25-02-2011
Stern gear installation	418-100-100	H	1/-	23-08-2010
Engine room layout	418-100-400	C	1/-	25-02-2011
Exhaust systems	418-100-500	B	1/1	21-04-2010
Engine room ventilation	418-100-600	B	1/1	22-12-2010
Fresh water diagram	418-200-100	D	1/-	22-12-2010
Seawater diagram	418-300-100	D	1/-	22-12-2010
Bilge-fifi diagram	418-400-100	D	1/-	24-01-2011
Wastewater diagram	418-500-100	D	1/-	22-12-2010
Vent and fill diagram	418-600-100	C	1/-	22-12-2010
Fuel diagram	418-700-100	D	1/	22-12-2010



14 Notes

